PEARSON

Math Makes Sense 3

Practice and Homework Book

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PEARSON

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PEARSON

Contents

UNIT 8

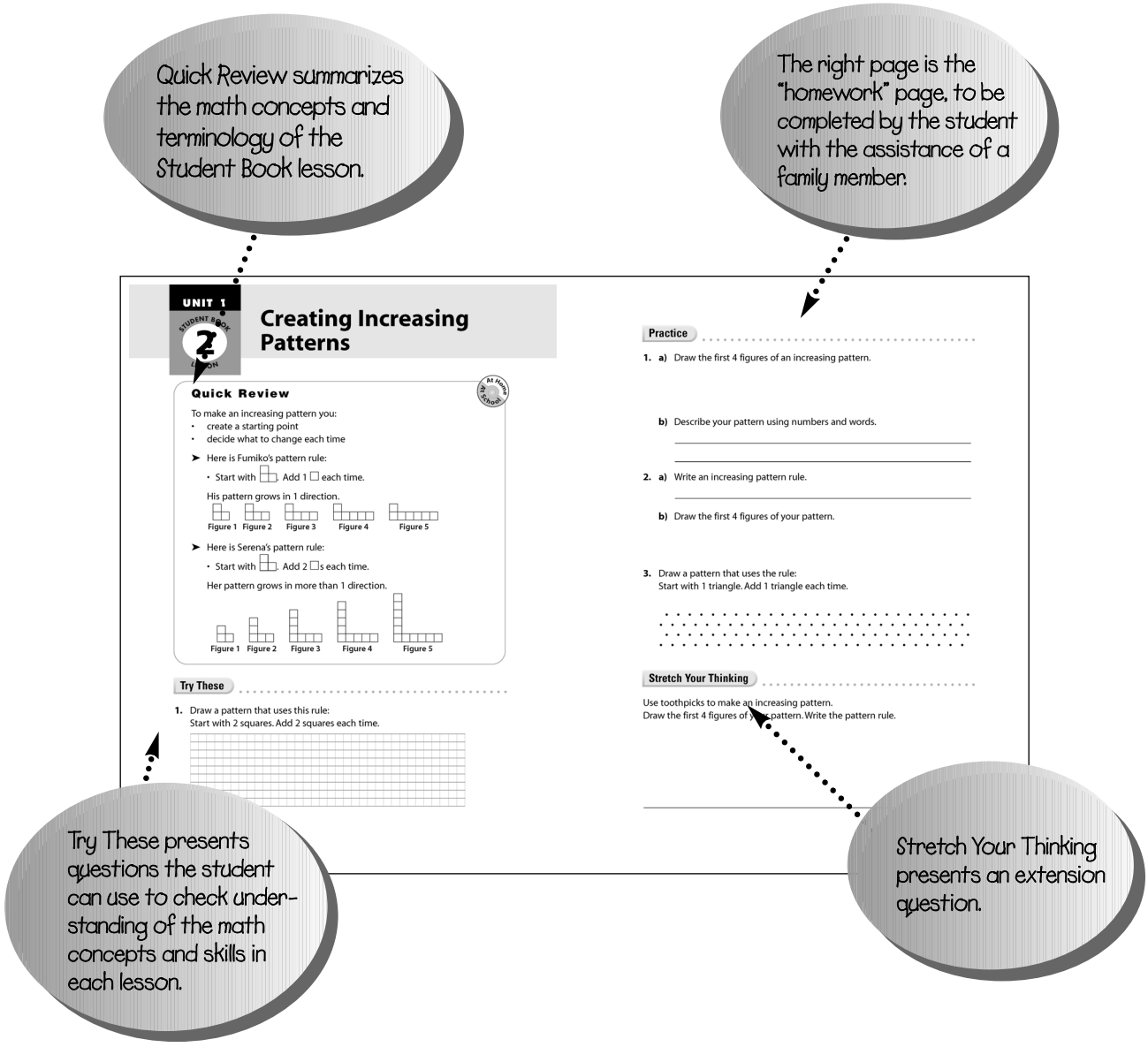
Multiplication and Division

To the Teacher

This Practice and Homework Book provides reinforcement of the concepts and skills explored in the *Pearson Math Makes Sense 3* program.

There are two sections in the book. The first section follows the sequence of *Math Makes Sense 3* Student Book. It is intended for use throughout the year as you teach the program. A two-page spread supports the content of each numbered lesson in the Student Book, other than Strategies Toolkit lessons.

In each Lesson:



The second section of the book, on perforated pages 133 to 144, consists of 3 four-page **Math at Home** sections. These fun pages contain intriguing activities, puzzles, rhymes, and games in a magazine format to encourage home involvement. The perforated design lets you remove, fold, and send home as an eight-page magazine after the student has completed Units 3, 6, and 8, respectively.

To the Family

The homework pages of this book will help your child practise the math concepts and skills that have been explored in the classroom. As you assist your child to complete each page, you have an opportunity to talk about the math and to become involved in your child's learning.

The left page of a two-page spread always contains a summary of the main concepts and terminology of the lesson that you and your child can use to review the work done in class. The right page contains practice closely linked to the content of the left page.

Here are some ways you can help:

- With your child, read over the Quick Review. Encourage your child to talk about the content and explain it to you in his or her own words.
- Read the instructions with (or for) your child to ensure your child understands what to do.
- Encourage your child to explain his or her thinking as each page is completed.
- Some of the pages require specific materials. You may wish to gather items such as a centimetre ruler, index cards, number cubes, paper clips, toothpicks, crayons/markers, counters or beads, paper bags, calculators, modelling clay, boxes or containers, and tape.

These homework pages are intended to be enjoyable—many of the Practice sections contain games that will also improve your child's math skills. You may have other ideas for activities your child can share with the rest of the class.

This math workbook will be sent home frequently throughout the year. Please help your child complete the assigned work. Make sure the book is returned promptly.

UNIT 1

STUDENT BOOK 1 LESSON

Exploring Increasing Patterns

Quick Review

At Home At School

Here are 2 **increasing patterns**.

➤ This pattern grows by the same number of blocks each time.

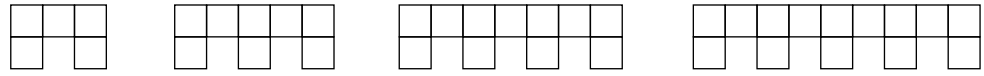
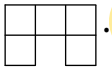


Figure 1 Figure 2 Figure 3 Figure 4

The **pattern rule** is:

- Start with  . Add  each time.

➤ This pattern grows by a different number of blocks each time.

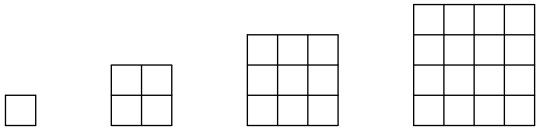


Figure 1 Figure 2 Figure 3 Figure 4

The pattern rule is:

- Start with 1 □.
- Add 3 □ to make a larger square.
- Then, add 2 more □s than the time before.

Try These

1. a) Use Pattern Blocks. Make the next 3 figures in this increasing pattern.

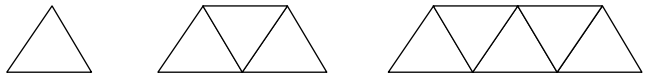


Figure 1 Figure 2 Figure 3

b) Draw the pattern on the dot paper.

c) Write the pattern rule.

_____

Practice

1. a) Use toothpicks. Copy the pattern.
Make the next 3 figures.
Draw the pattern on grid paper.

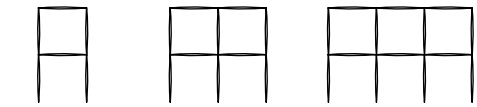


Figure 1 Figure 2 Figure 3

b) Write the pattern rule. _____

2. a) Draw the next 3 figures in this increasing pattern.

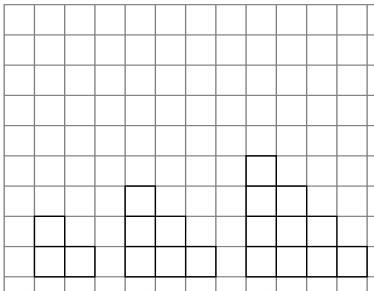


Figure 1 Figure 2 Figure 3

b) Write the pattern rule. _____

_____

Stretch Your Thinking

Figure 3 and Figure 5 are missing. Draw what they should be.

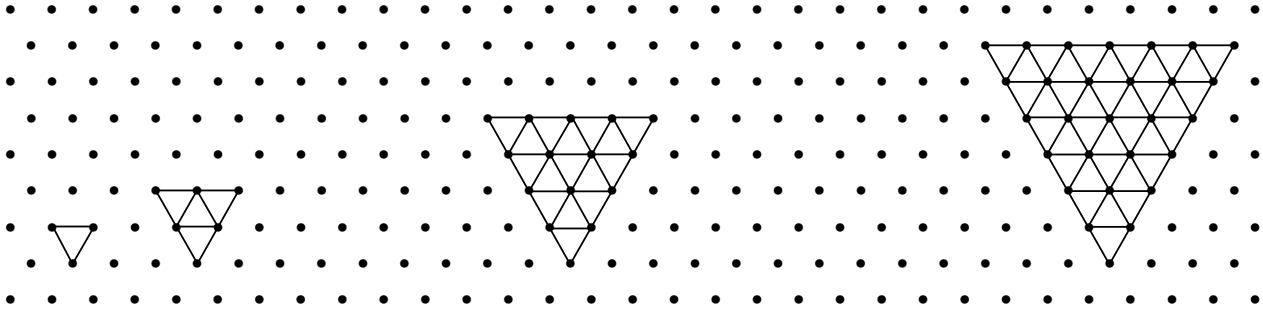


Figure 1 Figure 2 Figure 3 Figure 4 Figure 5 Figure 6

UNIT 1

STUDENT BOOK 2 LESSON

Creating Increasing Patterns

Quick Review

At Home At School

To make an increasing pattern you:

- create a starting point
- decide what to change each time

➤ Here is Fumiko's pattern rule:

- Start with  . Add 1 □ each time.

His pattern grows in 1 direction.

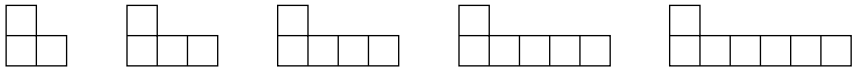


Figure 1 Figure 2 Figure 3 Figure 4 Figure 5

➤ Here is Serena's pattern rule:

- Start with  . Add 2 □s each time.

Her pattern grows in more than 1 direction.

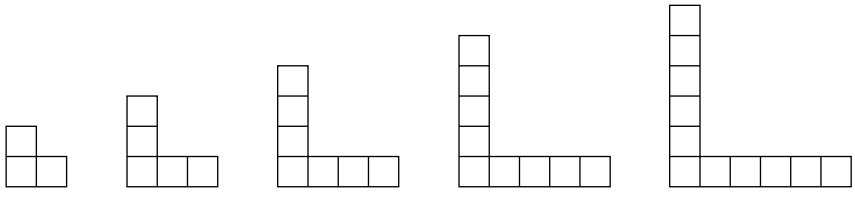
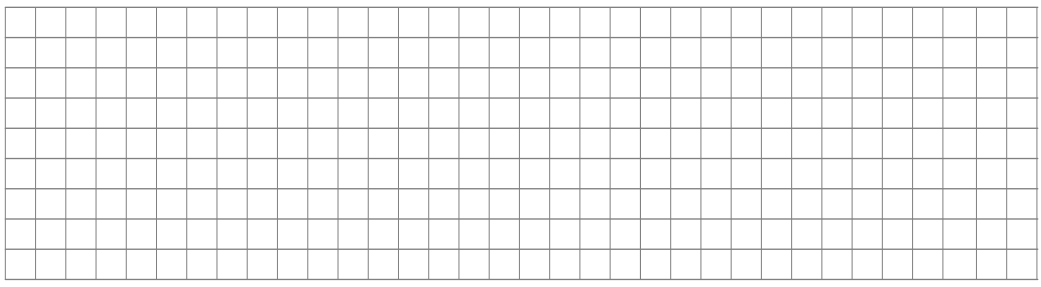


Figure 1 Figure 2 Figure 3 Figure 4 Figure 5

Try These

1. Draw a pattern that uses this rule:
Start with 2 squares. Add 2 squares each time.



Practice

1. a) Draw the first 4 figures of an increasing pattern.

b) Describe your pattern using numbers and words.

_____

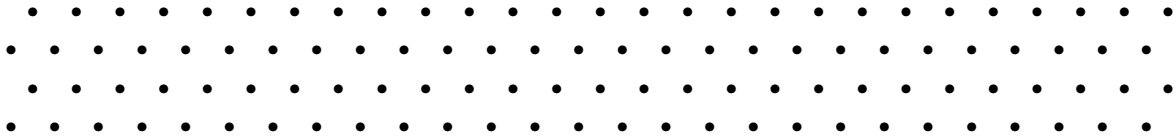
_____

2. a) Write an increasing pattern rule.

_____

b) Draw the first 4 figures of your pattern.

3. Draw a pattern that uses the rule:
Start with 1 triangle. Add 1 triangle each time.



Stretch Your Thinking

Use toothpicks to make an increasing pattern.
Draw the first 4 figures of your pattern. Write the pattern rule.

UNIT 1

STUDENT BOOK 3 LESSON

Comparing Increasing Patterns

Quick Review

At Home At School

➤ These patterns use the same starting point but they increase in different ways.

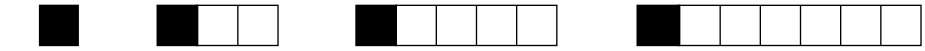


Figure 1 Figure 2 Figure 3 Figure 4

Figure 1 Figure 2 Figure 3 Figure 4

➤ These patterns use different starting points but they increase the same way.

Figure 1 Figure 2 Figure 3 Figure 4

Figure 1 Figure 2 Figure 3 Figure 4

Try These

1. Write the pattern rule for each increasing pattern.

a)

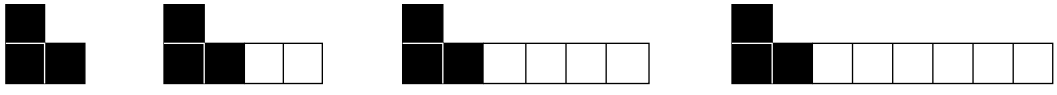


Figure 1 Figure 2 Figure 3 Figure 4

b)

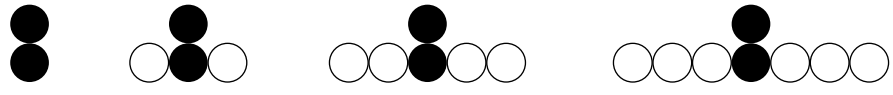


Figure 1 Figure 2 Figure 3 Figure 4

Practice

1. a) Write the pattern rule.

Figure 1 **Figure 2** **Figure 3** **Figure 4**

b) Draw a pattern that has the same starting point but increases a different way. Write the pattern rule.

c) Draw a pattern that has a different starting point but increases the same way. Write the pattern rule.

Stretch Your Thinking

Start with 2 squares. Draw the first 4 figures of an increasing pattern.

Compare your pattern with that of a classmate.

UNIT 1

STUDENT BOOK 4 LESSON

Increasing Number Patterns

Quick Review

At Home At School

Look at the increasing patterns in the hundred chart.

➤ The pattern rule for the shaded squares is:

- Start at 4. Add 10 each time.

The tens digit increases by 1.
The ones digit is always 4.

➤ The pattern rule for the circled numbers is:

- Start at 3. Add 3 each time.

1	2	(3)	4	5	(6)	7	8	(9)	10
11	(12)	13	14	(15)	16	17	(18)	19	20
(21)	22	23	(24)	25	26	(27)	28	29	(30)
31	32	(33)	34	35	(36)	37	38	(39)	40
41	(42)	43	44	(45)	46	47	(48)	49	50
(51)	52	53	(54)	55	56	(57)	58	59	(60)
61	62	(63)	64	65	(66)	67	68	(69)	70
71	(72)	73	74	(75)	76	77	(78)	79	80
(81)	82	83	(84)	85	86	(87)	88	89	(90)
91	92	(93)	94	95	(96)	97	98	(99)	100

Try These

1. Describe this pattern using numbers and words.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

_____

2. Fill in the missing numbers. Write the pattern rule.

a) 40, 45, 50, _____, _____, _____ _____

b) 26, 28, 30, _____, _____, _____ _____

c) 20, 30, 40, _____, _____, _____ _____

d) 18, 21, 24, _____, _____, _____ _____

Practice

1. Use a different colour for each pattern.

a) Start at 47. Add 10 each time.

b) Start at 84. Add 4 each time.

c) Start at 35. Add 5 each time.

d) Start at 33. Add 3 each time.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

2. Suppose you have 7 dimes. Show how much money you have.

3. Matsumo earns $5 a day babysitting. How much money will he have after 8 days? Show how you know.

4. Fill in the missing numbers.

a) 52, 54, 56, _____, _____, _____, _____, _____, _____, _____

b) 15, 25, 35, _____, _____, _____, _____, _____, _____, _____

c) 3, 13, 23, _____, _____, _____, _____, _____, _____, _____

Stretch Your Thinking

Suppose you start at 43 and count by 10s to 93.
Would you say 63? 85? Why or why not?

Suppose you start at 24 and count by 2s to 48.
Would you say 40? 47? Why or why not?

UNIT 1

STUDENT BOOK 6 LESSON

Exploring Decreasing Patterns

Quick Review

At Home At School

Shrinking patterns are **decreasing patterns**.

➤ This pattern decreases by the same number of squares each time.

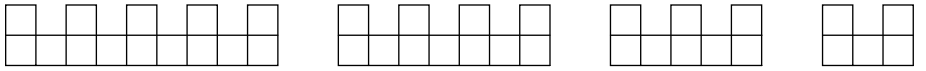


Figure 1 **Figure 2** **Figure 3** **Figure 4**

The pattern rule is:

- Start with 14 □s. Remove 3 □s each time.

➤ This pattern decreases by a different number of squares each time.

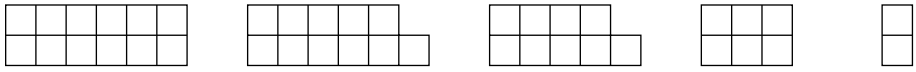


Figure 1 **Figure 2** **Figure 3** **Figure 4** **Figure 5**

The pattern rule is:

- Start with 12 □s. Remove 1 □.
- Then, remove 1 more □ than the time before.

Try These

1. Draw the next 2 figures in each decreasing pattern.

a)

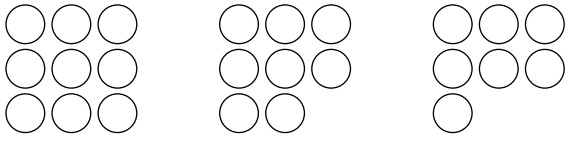


Figure 1 **Figure 2** **Figure 3**

b)

Figure 1 **Figure 2** **Figure 3**

2. Look at the patterns in question 1. Write the pattern rule for each.

a) _____

b) _____

Practice

1. a) Draw the next 2 figures in this decreasing pattern.

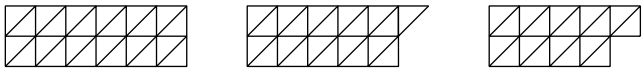


Figure 1 **Figure 2** **Figure 3**

b) Write the pattern rule.

_____

2. a) Use toothpicks. Make the next 2 figures in the decreasing pattern. Draw the figures.

Figure 1 **Figure 2** **Figure 3**

b) Write the pattern rule. _____

_____

3. Crystal made a decreasing pattern out of squares.

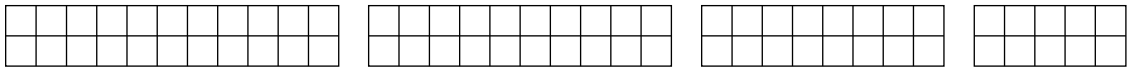


Figure 1 **Figure 2** **Figure 3** **Figure 4**

How many more figures can she make? _____ How do you know?

_____

_____

_____

Stretch Your Thinking

Use square tiles to make a decreasing pattern.
Draw the first 4 figures of your pattern.

Write the pattern rule. _____

UNIT 1

STUDENT BOOK 7 LESSON

Creating and Comparing Decreasing Patterns

Quick Review

At Home At School

➤ Cassie chose this pattern rule:

- Start with 10 ○s in a line. Remove 3 ○s each time.

Figure 1 Figure 2 Figure 3 Figure 4

➤ Helio chose this pattern rule:

- Start with 10 ○s in a line. Remove 1 ○.
- Then, remove 1 more ○ than the time before.

Figure 1 Figure 2

Figure 3 Figure 4

Their patterns have the same starting point but they decrease in different ways.

Try These

1. How are these patterns the same? How are they different?

a)

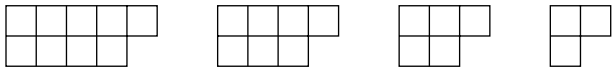


Figure 1 Figure 2 Figure 3 Figure 4

b)

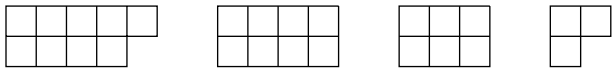


Figure 1 Figure 2 Figure 3 Figure 4

Practice

1. Use counters. Draw the first 4 figures for each pattern rule.

a) Start with 12 counters. Remove 2 counters each time.

b) Start with 15 counters. Remove 1 counter. Then, remove 1 more counter than the time before.

2. Draw the missing figure.

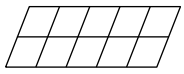


Figure 1

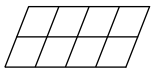


Figure 2

Figure 4

Stretch Your Thinking

Draw the first 4 figures of a decreasing pattern.
Compare your pattern with that of a classmate.

UNIT 1

STUDENT BOOK 8 LESSON

Decreasing Number Patterns

Quick Review

At Home At School

Look at the decreasing patterns in the 100-to-1 chart.

- The pattern rule for the shaded squares is:
  - Start at 100. Count back by 10s each time.
- The pattern rule for the circled numbers is:
  - Start at 42. Count back by 3s each time.

100	99	98	97	96	95	94	93	92	91
90	89	88	87	86	85	84	83	82	81
80	79	78	77	76	75	74	73	72	71
70	69	68	67	66	65	64	63	62	61
60	59	58	57	56	55	54	53	52	51
50	49	48	47	46	45	44	43	(42)	41
40	(39)	38	37	(36)	35	34	(33)	32	31
(30)	29	28	(27)	26	25	(24)	23	22	(21)
20	19	(18)	17	16	(15)	14	13	(12)	11
10	(9)	8	7	(6)	5	4	(3)	2	1

Try These

1. Use this hundred chart.

a) Start at 40. Count back by 5s. Shade the numbers green.

b) Start at 14. Count back by a different number. Shade the numbers yellow.

100	99	98	97	96	95	94	93	92	91
90	89	88	87	86	85	84	83	82	81
80	79	78	77	76	75	74	73	72	71
70	69	68	67	66	65	64	63	62	61
60	59	58	57	56	55	54	53	52	51
50	49	48	47	46	45	44	43	42	41
40	39	38	37	36	35	34	33	32	31
30	29	28	27	26	25	24	23	22	21
20	19	18	17	16	15	14	13	12	11
10	9	8	7	6	5	4	3	2	1

2. Write the first 5 numbers in each pattern.

a) Start at 50. Count back by 5s each time. _____

b) Start at 47. Count back by 10s each time. _____

c) Start at 53. Count back by 3s each time. _____

Practice

1. Fill in the missing numbers. Write the pattern rule.

a) 58, 56, 54, ____, ____, ____ _____

b) 75, 65, 55, ____, ____, ____ _____

c) 68, 65, 62, ____, ____, ____ _____

2. a) Shade a decreasing number pattern on the hundred chart. Write the pattern rule.

_____

_____

100	99	98	97	96	95	94	93	92	91
90	89	88	87	86	85	84	83	82	81
80	79	78	77	76	75	74	73	72	71
70	69	68	67	66	65	64	63	62	61
60	59	58	57	56	55	54	53	52	51
50	49	48	47	46	45	44	43	42	41
40	39	38	37	36	35	34	33	32	31
30	29	28	27	26	25	24	23	22	21
20	19	18	17	16	15	14	13	12	11
10	9	8	7	6	5	4	3	2	1

b) Circle a different decreasing number pattern on the hundred chart.
How are your patterns the same?
How are they different?

_____

_____

3. Kazuo had twenty-four dollars.
Each day he spent two dollars.
How much money did Kazuo have after 8 days? _____

Stretch Your Thinking

Suppose you start at 95 and count back to 35.

a) If you count back by 10s, will you say 60? How do you know?

_____

b) If you count back by 5s, will you say 50? How do you know?

_____

_____

UNIT 2

STUDENT BOOK 1 LESSON

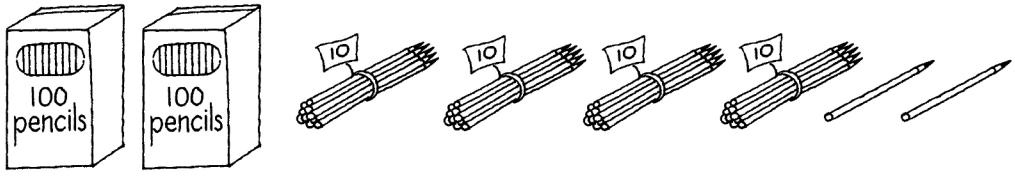
Counting Large Collections

Quick Review

At Home At School

One way to count a large collection is to make groups of tens and hundreds.

➤ Count the pencils.
There are two groups of 100, four groups of 10, and two 1s.



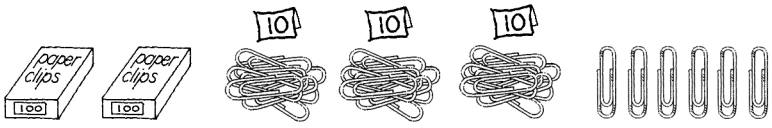
There are two hundred forty-two pencils.

➤ Draw a collection of 331 toy dinosaurs.
Think: I need to draw 3 tubs of 100 dinosaurs, 3 smaller tubs of 10 dinosaurs, and 1 single dinosaur.

Count to check: 100, 200, 300, 310, 320, 330, 331

Try These

1. How many? Record your count.



_____

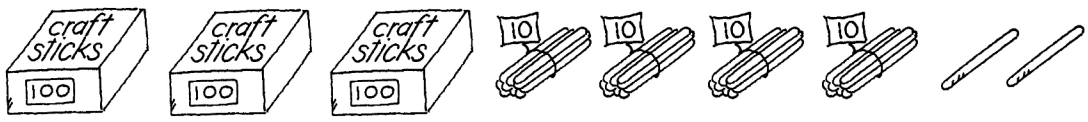
2. Fill in the missing numbers.

101	102	103			106	107			110
			114				118	119	
	122				126			129	

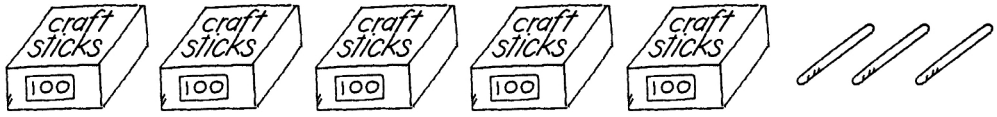
Practice

1. How many? Record your count.

a)



b)



2. Draw pictures to represent each number.
Tell the number of hundreds, tens, and ones.

a) 158

b) 461

Stretch Your Thinking

Suppose all the craft sticks in question 1 are put together.

a) How many hundreds are there? _____

b) How many tens? _____

c) How many ones? _____

d) What number is that? _____

UNIT 2

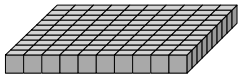
STUDENT BOOK 2 LESSON

Modelling 3-Digit Numbers

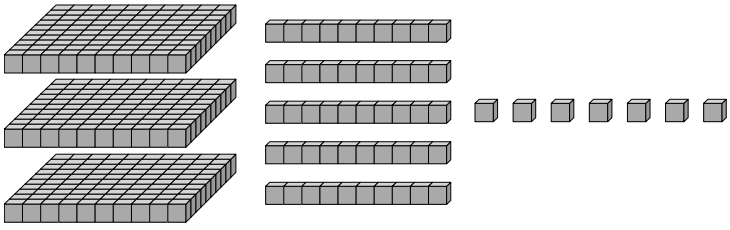
Quick Review

At Home At School

Our number system is based on groups of 10.

		
100 one hundred 1 hundred = 10 tens	10 ten 1 ten = 10 ones	1 one

Here is one way to model 357.



The base-ten name is
3 hundreds 5 tens 7 ones.

In words:
three hundred fifty-seven

Hundreds	Tens	Ones
3	5	7

The value of this digit is 3 hundreds, or 300.

The value of this digit is 5 tens, or 50.

The value of this digit is 7 ones, or 7.

Try These

1. Draw a picture to show each number.
Use squares for flats, sticks for rods, and dots for cubes.

a) 256 **b)** 460 **c)** 809

Practice

1. Write the number for each base-ten name.

a) 6 hundreds 4 tens 5 ones _____ **b)** 4 hundreds 7 tens _____

c) 7 hundreds 2 tens 1 one _____ **d)** 8 hundreds 4 ones _____

2. Write the base-ten name for each number.

a) 158 _____

b) 562 _____

c) 209 _____

d) 630 _____

3. Find two 3-digit numbers in a newspaper or magazine.
Record these numbers in the chart.
Draw a picture and write the base-ten name for each number.

Number	Picture	Base-Ten Name

Stretch Your Thinking

Stamps are sold in booklets of 100, 50, and 10.
Find as many different ways to buy 200 stamps as you can.
Record your work in the chart.

100s									
50s									
10s									

UNIT 2

STUDENT BOOK 3 LESSON

Showing Numbers in Many Ways

Quick Review

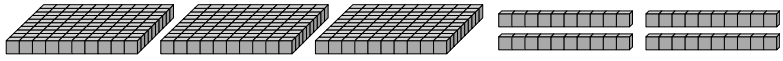
At Home At School

Here are different ways to show 340.

Picture: □□□||||

Base-ten name: 3 hundreds 4 tens

Base Ten Blocks:

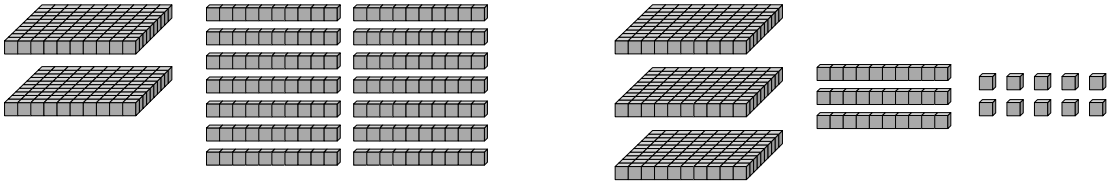


Place-value chart:

Hundreds	Tens	Ones
3	4	0

Standard form: 340

You can use Base Ten Blocks to show 340 in different ways:



Try These

1. Write each number in standard form.

a) 7 hundreds 4 tens 6 ones _____

b) 8 tens _____

c) 9 hundreds 8 tens 3 ones _____

d) 5 hundreds 2 ones _____

2. Write the base-ten name for each number.

a) 627 _____

b) 209 _____

c) 463 _____

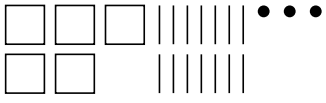
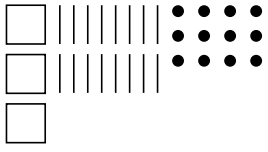
Practice

1. Draw a picture to show each number. Use the fewest Base Ten Blocks.

a)	b)	c)
521	309	264

2. Draw a picture of Base Ten Blocks to show 421 in 3 different ways.

3. Draw a new picture for each number using the fewest blocks.
Then write each number in standard form.

Picture	Picture	Standard Form
		
		

Stretch Your Thinking

Draw a picture of Base Ten Blocks.
Show 315 using exactly 36 blocks.

UNIT 2

STUDENT BOOK 5 LESSON

Comparing and Ordering Numbers

Quick Review

At Home At School

You can use place value to **compare** and **order** numbers.

➤ To compare 524 and 528:

1. Compare hundreds.
524
528
Both have 5 hundreds, or 500.

2. Compare tens.
5**2**4
5**2**8
Both have 2 tens, or 20.

3. Compare ones.
52**4**
52**8**
4 ones are less than 8 ones.

So, 524 **is less than** 528 and 528 **is greater than** 524.
524 < 528 528 > 524

➤ To order 846, 597, and 848, compare each digit.

Hundreds	Tens	Ones
8	4	6
5	9	7
8	4	8

597 has the fewest hundreds, so it is the least number.
848 and 846 have the same number of hundreds and tens.
846 has fewer ones than 848.
So, 846 < 848.

The order from least to greatest is 597, 846, 848.
The order from greatest to least is 848, 846, 597.

Try These

1. Write < or > to make a true statement.

a) 845 ☐ 863 **b)** 714 ☐ 703 **c)** 452 ☐ 396

2. Circle the greatest number.

a) 573 68 329 592

b) 925 936 919 931

c) 608 680 724 691

d) 357 624 639 620

Practice

1. Write a number to make each statement true.

a) 445 > ____ **b)** 799 < ____ **c)** 704 < ____ **d)** 628 < ____

2. Order the numbers from least to greatest.

a) 826, 527, 504, 817 _____

b) 634, 700, 629, 701 _____

c) 358, 324, 196, 238 _____

3. Order the numbers from greatest to least.

a) 584, 435, 581 _____

b) 870, 973, 970 _____

4. Use the digits 4, 9, and 6. Make as many 3-digit numbers as you can. Order the numbers from least to greatest.

_____

5. The chart shows how far some students travelled on their holidays.
Who travelled:

a) the greatest distance? _____

b) the least distance? _____

c) further than David but not as far as Enrique? _____

Name	Distance Travelled
David	825 km
Serena	850 km
Mabel	990 km
Enrique	900 km

Stretch Your Thinking

Use the clues to find the mystery number.

➤ The number is less than 800 but greater than 780.

➤ It has 8 more tens than ones. _____

UNIT 2

STUDENT BOOK 6 LESSON

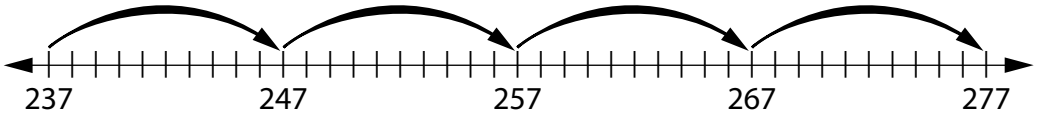
Counting by 5s, 10s, 25s, and 100s

Quick Review

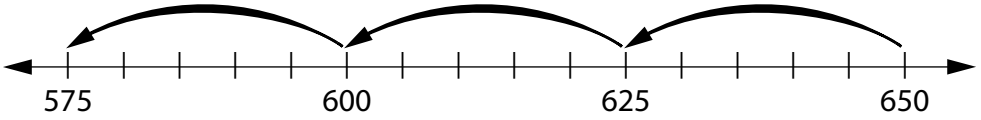
At Home At School

We can use a **number line** to count.

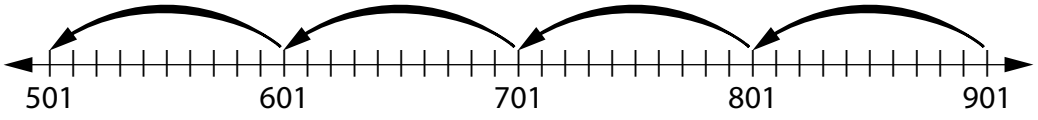
➤ To count on by 10s, start anywhere.



➤ To count on or back by 25s, start at a number that ends in 25, 50, 75, or 00.



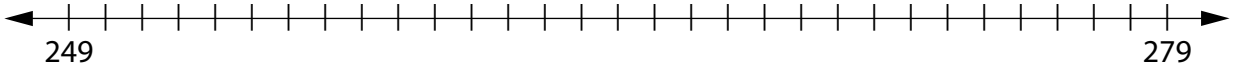
➤ To count on or back by 100s, start anywhere.



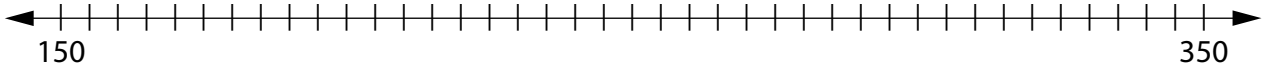
Try These

1. Use the number lines.

a) Start at 249. Count on by 5s to 279.



b) Start at 350. Count back by 25s to 150.



2. Fill in the missing numbers.

a) 145, 245, ____, 445, ____

b) 150, ____, 200, ____, 250

c) ____, 294, 289, 284, ____

d) ____, 727, ____, 527, 427

Practice

1. Start at 370.

Count on by 5s: ____, ____, ____, ____, ____, ____, ____

Count on by 10s: ____, ____, ____, ____, ____, ____, ____

Count on by 100s: ____, ____, ____, ____, ____, ____, ____

2. Start at 850.

Count back by 5s: ____, ____, ____, ____, ____, ____, ____

Count back by 25s: ____, ____, ____, ____, ____, ____, ____

Count back by 100s: ____, ____, ____, ____, ____, ____, ____

3. Fill in the missing numbers.
Describe your pattern.

a) 153, 148, 143, ____, ____, ____ _____

b) 563, 463, 363, ____, ____, ____ _____

c) 417, 427, 437, ____, ____, ____ _____

4. Find the missing numbers to complete each pattern.
Rewrite the patterns correctly.

a) 271, 371, 571, 671, 771 _____

b) 850, 825, 800, 750, 725 _____

c) 218, 208, 188, 178, 168 _____

Stretch Your Thinking

Suppose you started at 775 and counted back to 475.
What might you be counting back by?
Give as many answers as you can.

_____

_____

UNIT 2

STUDENT BOOK 7 LESSON

Skip Counting with Coins

Quick Review

At Home At School

You can skip count to find the value of coin collections.

➤ Each nickel is worth 5 cents. Count by 5s.

5, 10, 15, 20, 25, 30, 35, 40, 45

The nickels are worth forty-five cents.

➤ Each quarter is worth 25 cents. Count by 25s.

25, 50, 75, 100, 125, 150, 175, 200, 225

The quarters are worth two hundred twenty-five cents.

We say two dollars and twenty-five cents.

Try These

1. Draw dimes to show one dollar and sixty cents.

2. Draw nickels to show one dollar and ten cents.

Practice

1. Count the money. Write each amount in words.

a) 

_____

b) 

_____

c) 

_____

2. Karl has four dollars in his piggy bank. All his coins are the same.
What coins could he have? How many solutions can you find?

_____

3. Tell how many of each coin make one dollar.

pennies _____ nickels _____ dimes _____

quarters _____ loonies _____

Stretch Your Thinking

Aloma has 11 coins that are all the same.
The value of her coins is two dollars and seventy-five cents.
What coins does Aloma have? Draw a picture to show your answer.

UNIT 2

STUDENT BOOK 8 LESSON

Representing Numbers with Coins

Quick Review

At Home At School

There are many different ways to make three dollars and thirty-two cents.

Three loonies, 3 dimes, and 2 pennies

Two loonies, 13 dimes, and 2 pennies

Three loonies, 2 dimes, and 12 pennies

Try These

1. How much money is shown in each picture? Write the amount in words.

a)

_____

b)

_____

c)

_____

Practice

1. Yuri has four dollars and forty-six cents.
He only has dimes, pennies, and loonies.
What coins could he have?
Use numbers, words, or pictures to show 3 possible solutions.

2. Use loonies, dimes, and pennies.
Show two dollars and sixty cents in 3 different ways.
Use numbers, words, or pictures to show each way.

3. How many of each coin makes three dollars and twenty-seven cents?

a) loonies 3 dimes _____ pennies _____

b) loonies _____ dimes 12 pennies _____

c) loonies _____ dimes _____ pennies 107

Stretch Your Thinking

Georgia has 24 coins that total five dollars and thirty-seven cents.
She only has loonies, dimes, and pennies. Draw Georgia's coins.

UNIT 2

STUDENT BOOK 9 LESSON

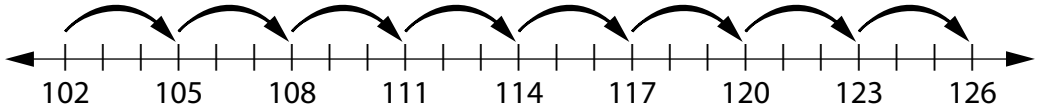
Counting by 3s and 4s

Quick Review

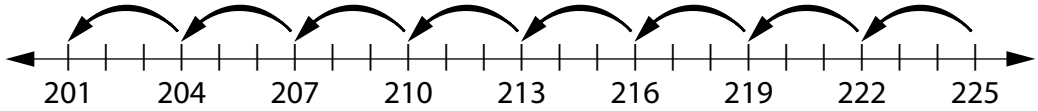
At Home At School

➤ To count on by 3s, say every third number.

- Start at 102. Count on by 3s: 102, 105, 108, 111, 114, . . .

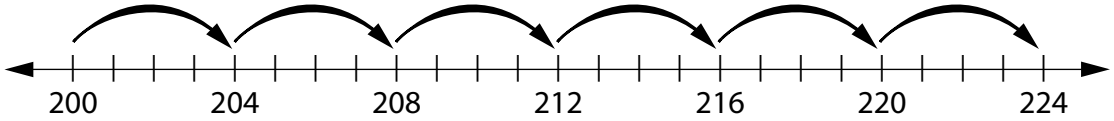


- Now start at 225. Count back by 3s: 225, 222, 219, 216, 213, . . .

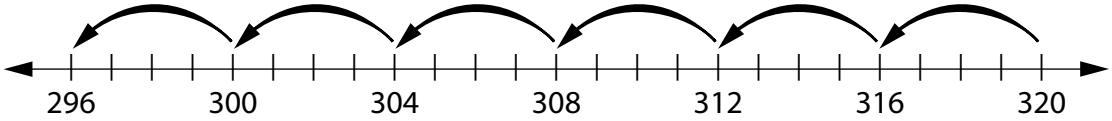


➤ To count on by 4s, say every fourth number.

- Start at 200. Count on by 4s: 200, 204, 208, 212, 216, . . .



- Now start at 320. Count back by 4s: 320, 316, 312, 308, 304, . . .



Try These

1. Fill in the missing numbers.

a) 150, 153, 156, ____, 162

b) 316, 312, 308, ____, 300

c) 408, 412, ____, ____, 424

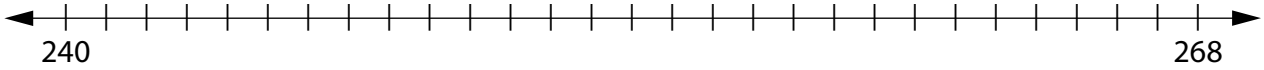
d) 147, 144, ____, ____, 135

e) 309, 312, ____, ____, ____

f) 160, 156, ____, ____, ____

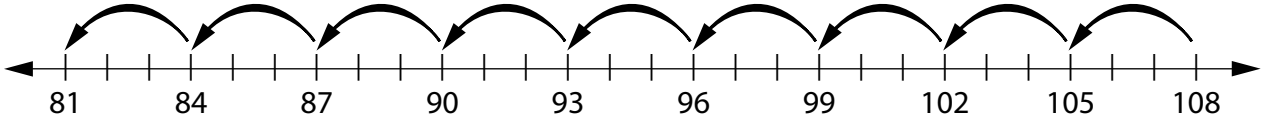
Practice

1. Use the number line. Start at 240. Count on by 4s to 268.
Write the pattern in the ones digits.



_____

2. Describe the pattern.



_____

3. Find the mistakes in each pattern. Rewrite the patterns correctly.

a) 195, 198, 201, 203, 207 _____

b) 606, 609, 610, 615, 618 _____

c) 160, 156, 152, 148, 136 _____

4. Start at 504. Write the first 5 numbers in each pattern.

a) Count back by 4s. ____, ____, ____, ____, ____

b) Count on by 3s. ____, ____, ____, ____, ____

c) Count on by 4s. ____, ____, ____, ____, ____

d) Count back by 3s. ____, ____, ____, ____, ____

Stretch Your Thinking

Suppose you started at 100 on a number line and counted on by 4s.
How many jumps would you make before you reached 200?
Which numbers would be in your pattern?

_____

_____

_____

UNIT 2

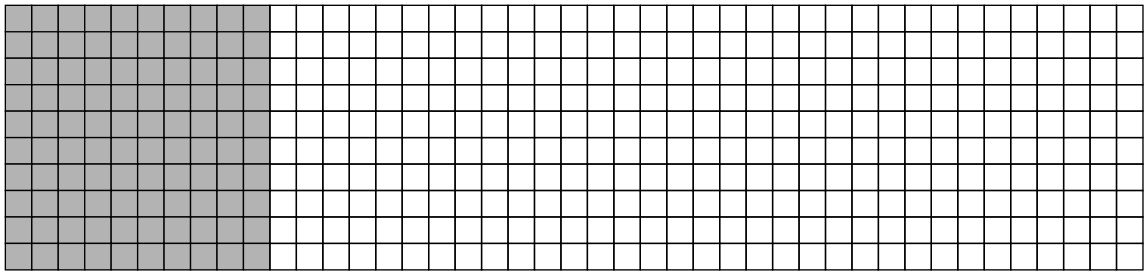
STUDENT BOOK 10 LESSON

Estimating to 1000

Quick Review

At Home At School

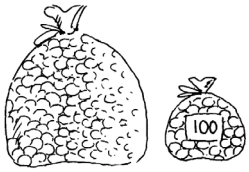
There are 100 shaded squares on the grid.
We can use 100 as a **referent** to help estimate how many squares are on the whole grid.



It looks like there is room for 4 groups of 100 on the whole grid.
100 + 100 + 100 + 100 = 400
A thoughtful estimate is 400 squares.

Try These

1. Estimate how many chestnuts are in the big bag.



2. Estimate how many marbles are in the jar.
How did you make your decision?

Practice

1. Fill a container with small objects, such as beads or pennies.

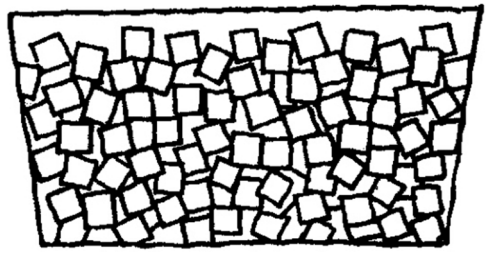
a) Estimate the number of objects in the container.
How did you make your estimate?

_____

_____

b) Count the objects to check your estimate. ____

2. Suggest a way to estimate the number of cubes in the tub.



_____

_____

_____

3. Choose the best estimate for the number of apples in the big pile: 205, 389, or 950. Explain your choice.

_____

_____

Stretch Your Thinking

Suppose you need about 500 cubes to build a robot. How could you predict if you have enough cubes without counting all of them?

_____

_____

UNIT 2

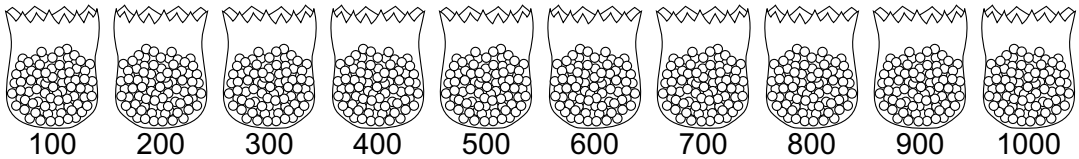
STUDENT BOOK 11 LESSON

How Much Is 1000?

Quick Review

At Home At School

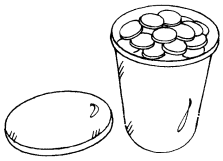
Ms. Henry has 10 bags of counters.
Each bag has 100 counters.
To find how many counters Ms. Henry has, you can count by 100s:



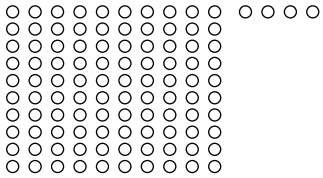
10 groups of 1 hundred make 1 **thousand**.

Sammy wants to find out how many yogurt containers 1000 counters will fill. Here is how he does it:

First Sammy estimates.



Then he fills a container with counters.



Sammy counts the counters.
There are 104.

Sammy thinks: It took 104 counters to fill one container.
104 is about 100.
10 hundreds make 1000.
So, 1000 counters will fill about 10 containers.

Try These

1. Draw pictures of Base Ten Blocks to show 1000 in 2 different ways.

Practice

1. Are there more than 1000 or fewer than 1000:

a) hairs on a horse? _____

b) grains of sand on the beach? _____

c) left-handed students in your school? _____

d) fingers and toes in your classroom? _____

2. Name 3 places where you might see 1000 people.

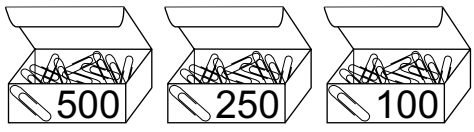
_____

3. Ms. Mansfield is making geoboards for the students in her class. Each geoboard takes 100 pins. How many geoboards can Ms. Mansfield make with 1000 pins? Show how you know.

4. Pumpkin seeds come in packages of 50. Mr. Conrad bought 1000 seeds. How many packages did he buy? Use pictures, numbers, or words to explain.

Stretch Your Thinking

Find as many ways as you can to buy exactly 1000 paper clips.



500						
250						
100						

UNIT 3

STUDENT BOOK 1 LESSON

Strategies for Addition Facts

Quick Review

At Home At School

Here are some strategies for addition.

➤ Use **near doubles**.
To find 7 + 8, think:
7 + 7 = 14
7 + 8 is 1 more.
So, 7 + 8 = 15

➤ Make 10.
To find 7 + 5, think:
7 + 3, plus another 2
Make 10.
7 + 5 = 12

➤ When you add, order does not matter.
2 + 6 = 6 + 2
So, 2 + 6 = 8

➤ When you add 0, the number does not change.
3 + 0 = 3

Try These

1. Add. Use doubles facts to help you.

a) 5 + 6 = _____ **b)** 5 + 4 = _____ **c)** 7 + 8 = _____

d) 8 + 9 = _____ **e)** 6 + 7 = _____ **f)** 4 + 5 = _____

2. Add. Use the facts for 10 to help you.

a) 9 + 5 = _____ **b)** 8 + 7 = _____ **c)** 8 + 4 = _____

d) 8 + 6 = _____ **e)** 5 + 8 = _____ **f)** 9 + 7 = _____

Practice

1. Play this game with a partner.
You will need:
9 small cards numbered 10 to 18 in a paper bag
25 counters of 1 colour and 25 of another colour

Take turns to play:

➤ Draw a card from the bag.
Find 2 numbers on the game board that add up to the number on the card.
Cover the 2 numbers with your counters.

➤ Put the card back in the bag.

➤ Play until one player cannot cover 2 numbers.

3	9	5	3	4	9	2	6
7	8	1	7	8	6	8	5
2	6	7	6	3	9	4	3
9	2	7	4	9	1	5	8
4	6	5	4	7	8	6	1
7	2	5	8	4	3	9	5

Stretch Your Thinking

Play the game again. This time, you may cover 2, 3, or 4 numbers that add up to the number on the card.

UNIT 3

STUDENT BOOK 2 LESSON

Relating Addition and Subtraction

Quick Review

At Home At School

Some number facts are **related**.

If you know 3 + 8 = 11
then you know 8 + 3 = 11

and you know 11 – 8 = 3
11 – 3 = 8

Related facts give us strategies for subtraction.
For example, to find 11 – 3 we can think 3 + ? = 11.
3 + 8 = 11
So, 11 – 3 = 8

Try These

1. Use each set of numbers to write a set of related facts.

a) 6, 4, 10 _____

b) 5, 9, 14 _____

c) 7, 7, 14 _____

d) 9, 15, 6 _____

2. Write the related facts for each given fact.

a) 6 + 8 = 14 _____

b) 7 + 5 = 12 _____

c) 13 – 6 = 7 _____

d) 10 – 8 = 2 _____

Practice

1. Play this game with a partner.
You will need:
2 sets of cards numbered 1 to 9
a paper bag
10 small counters for each player

- ➤ Partners each pick a grid.
- ➤ Put the numbered cards in the bag and shake.
- ➤ Take turns.
  Draw 2 cards.
  Add or subtract the 2 numbers on the cards.
  Put a counter on your grid on the sum or the difference.
  If there is already a counter on the number, you cannot put another one there.
- ➤ Keep playing until one player has covered all the numbers on his or her grid.

0	1	2	3	4
5	6	7	8	9

0	1	2	3	4
5	6	7	8	9

Stretch Your Thinking

The numbers in a set of related facts are 9, 4, and ? .

a) What could the missing number be? _____

Write the related facts.

_____

b) What is another possible missing number? _____

Write the related facts.

_____

UNIT 3

STUDENT BOOK 3 LESSON

Addition and Subtraction Equations

Quick Review

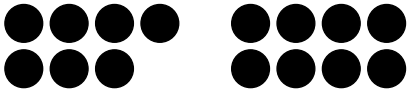
At Home At School

An **equation** is a statement that 2 things are equal.
These are all equations.

$6 + 4 = 10$	$9 = 2 + 7$	$3 + 6 = 4 + 5$	$6 + \square = 15$
$8 - 2 = 6$	$10 - \square = 2$	$4 = 10 - 6$	$9 - 2 = 8 - 1$

Here are some strategies to solve the equation $7 + \square = 15$.

➤ Use 15 counters.



$7 + \mathbf{8} = 15$

➤ Use mental math.

$7 + 10 = 17$

So, $7 + \mathbf{8} = 15$

➤ Use guess and check.

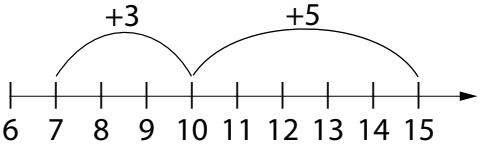
$7 + \mathbf{7} = 14$

The sum is too low.

$7 + \mathbf{8} = 15$

So, the missing number is 8.

➤ Use a number line.

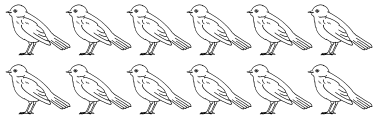


$3 + 5 = 8$

So, $7 + \mathbf{8} = 15$

Try These

1. Find each missing number.

a)	b)	c)
		
$6 + \_\_\_\_\_ = 13$	$\_\_\_\_\_ + 9 = 15$	$12 - \_\_\_\_\_ = 7$

Practice

1. Find each missing number. Draw a picture for each.

a) 11 – _____ = 4	**b)** 6 + _____ = 15	**c)** _____ + 4 = 13
d) 14 – _____ = 6	**e)** _____ – 2 = 9	**f)** 9 + _____ = 16

2. Solve each equation. Use any strategy you wish.

a) 12 – _____ = 9 **b)** _____ + 7 = 16 **c)** _____ – 8 = 2

d) 3 + _____ = 12 **e)** 15 – _____ = 7 **f)** 5 + _____ = 13

g) 15 – _____ = 9 **h)** _____ – 5 = 9 **i)** _____ + 9 = 18

3. What number do you subtract from 11 to make 9? Explain.

_____

Stretch Your Thinking

Find the missing numbers: _____ – 8 = _____
Show as many different ways as you can.

_____

_____

_____

UNIT 3

STUDENT BOOK 4 LESSON

Estimating Sums

Quick Review

At Home At School

When you do not need an exact answer, you **estimate**.
Bella has 58 silver stars and 21 gold stars.
About how many stars does Bella have?

Estimate: 58 + 21
Here are 3 ways to estimate.

➤ **Take Each Number to the Closest 10**

58 ⟶ 60
21 ⟶ 20

60 + 20 = 80

Bella has about 80 stars.

➤ **Take One Number to the Closest 10**

58 ⟶ 60
60 + 21 = 81

Bella has about 81 stars.

➤ **Add Only the Tens Digits**

58 has 5 tens.
21 has 2 tens.

5 tens + 2 tens = 7 tens, or 70

Bella has about 70 stars.

Try These

1. Circle the better estimate for each sum.

a) 51 + 23

70 or 80

b) 44 + 39

70 or 80

c) 38 + 16

40 or 50

d) 61 + 28

80 or 90

Practice

1. Circle the 2 numbers that will give the sum closest to:

a) 90: 40 55 36 39 18

b) 70: 22 38 60 50 59

c) 60: 14 30 39 18 28

2. Estimate each sum.

Problem	Estimate
42 + 19	
38 + 22	
11 + 20	
77 + 15	
23 + 28	

Problem	Estimate
19 + 40	
36 + 29	
68 + 31	
43 + 19	
51 + 29	

3. The estimated sum of 2 numbers is 40.
What might the 2 numbers be?
Give 2 different answers.

_____

4. Art and Carol estimate that the sum of 2 numbers is 89.
The 2 numbers are 48 and 39.
How might they have estimated?

_____

Stretch Your Thinking

Circle the 2 numbers that will give the sum closest to 90.

12 18 46 70 81 32

UNIT 3

STUDENT BOOK 5 LESSON

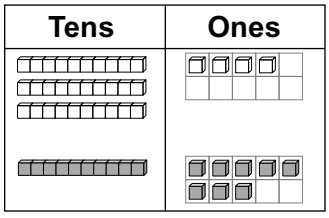
Adding 2-Digit Numbers

Quick Review

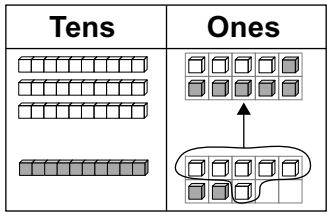
At Home At School

➤ Find: 34 + 18

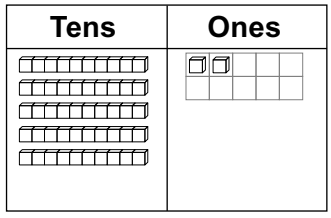
Here are 2 ways.



34 + 18



Put 10 ones together to make 10.



Trade 10 ones for 1 ten.
This makes 5 tens and 2 ones.
34 + 18 = 52

➤ Record 34 and 18 as tens and ones.
34 = 30 + 4
18 = 10 + 8

Add the tens: 30 + 10 = 40
Add the ones: 4 + 8 = 12
Add the sums: 40 + 12 = 52

Try These

1. Add.

a) 35 + 22 = _____ **b)** 28 + 41 = _____ **c)** 37 + 53 = _____

d) 51 + 43 = _____ **e)** 38 + 47 = _____ **f)** 51 + 16 = _____

g) 46 + 13 = _____ **h)** 57 + 35 = _____ **i)** 52 + 26 = _____

Practice

1. Add.

a) 45 + 13 = _____ **b)** 67 + 19 = _____ **c)** 49 + 32 = _____

d) 59 + 23 = _____ **e)** 48 + 18 = _____ **f)** 37 + 54 = _____

2. Add to find the answer to the riddle.
Match each letter to its answer.

Riddle: Where do horses go when they are sick?

18 + 36 = _____ (H) 53 + 46 = _____ (S)

47 + 25 = _____ (P) 36 + 39 = _____ (O)

28 + 33 = _____ (R) 19 + 38 = _____ (I)

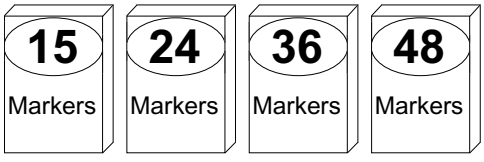
14 + 17 = _____ (T) 26 + 53 = _____ (L)

62 + 25 = _____ (A) 41 + 44 = _____ (E)

31	75	31	54	85	54	75	61	99	85		72	57	31	87	79				

Stretch Your Thinking

Suppose you could choose 2 boxes of markers.
Find all the possible pairs.



Write a number sentence to show how many markers are in each pair.

_____

_____

UNIT 3

STUDENT BOOK 6 LESSON

Using Mental Math to Add

Quick Review

At Home At School

When you add in your head, you do **mental math**.

Jake bought 28 guppies and 24 goldfish.
How many fish did Jake buy altogether?

Here are some ways to use mental math to add 28 + 24.

➤ Add the tens, then the ones. Then add sums.

Think:

28 = 20 + 8
24 = 20 + 4

20 + 20 = 40
8 + 4 = 12

40 + 12 = 52
So, 28 + 24 = 52.

➤ Use a "friendly" number.

Think:

28 is close to 30.
30 + 24 = 54

28 + 24 is 2 less.
So, 28 + 24 = 52.

Jake bought 52 fish.

Try These

Use mental math.

1. Add.

a) 46 + 28 = _____ **b)** 18 + 24 = _____ **c)** 55 + 38 = _____

d) 39 + 52 = _____ **e)** 36 + 19 = _____ **f)** 47 + 29 = _____

2. Add. What patterns do you see?

a) 36 + 10 = _____ , 36 + 20 = _____ , 36 + 30 = _____ , 36 + 40 = _____

_____

b) 30 + 16 = _____ , 30 + 26 = _____ , 30 + 36 = _____ , 30 + 46 = _____

_____

Practice

1. Use mental math to add.

a) 49 + 23 = _____ **b)** 51 + 37 = _____ **c)** 64 + 19 = _____

d) 31 + 49 = _____ **e)** 17 + 39 = _____ **f)** 54 + 23 = _____

2. Use mental math. Find out how many seashells you would have if you bought one tub each of:

a) sand dollars and cowries _____

b) oysters and pukas _____

c) pukas and sand dollars _____

d) pukas and cowries _____

e) oysters and cowries _____

f) sand dollars and oysters _____

3. Sanjay has 27 seahorses and 26 sea urchins in his salt-water tank.

How many sea creatures is that? _____

4. Marta had 41 red buttons and 57 silver buttons.

How many buttons is that? _____

Stretch Your Thinking

Use mental math to add: 24 + 37 + 26 = _____
Describe the strategy you used.

_____

_____

_____

UNIT 3

STUDENT BOOK 7 LESSON

Adding 3-Digit Numbers

Quick Review

At Home At School

The bakery shop made 158 blueberry muffins and 213 bran muffins.
How many muffins is that?

Here are 2 ways to add 158 and 213.

➤ Use place value.

Add the ones.	Trade 10 ones for 1 ten.	Add the tens. Add the hundreds.
158	$\overset{1}{1}58$	$\overset{1}{1}58$
+ 213	+ 213	+ 213
Think: 8 + 3 = 11	1	371

➤ I started with 158.
I added 200 to get 358.
I added 10 to get 368.
Then I added 3 to get 371.

There are 371 muffins.

158
+ 200
358
+ 10
368
+ 3
371

Try These

1. Add.

a) 143 + 312

b) 276 + 314

c) 567 + 272

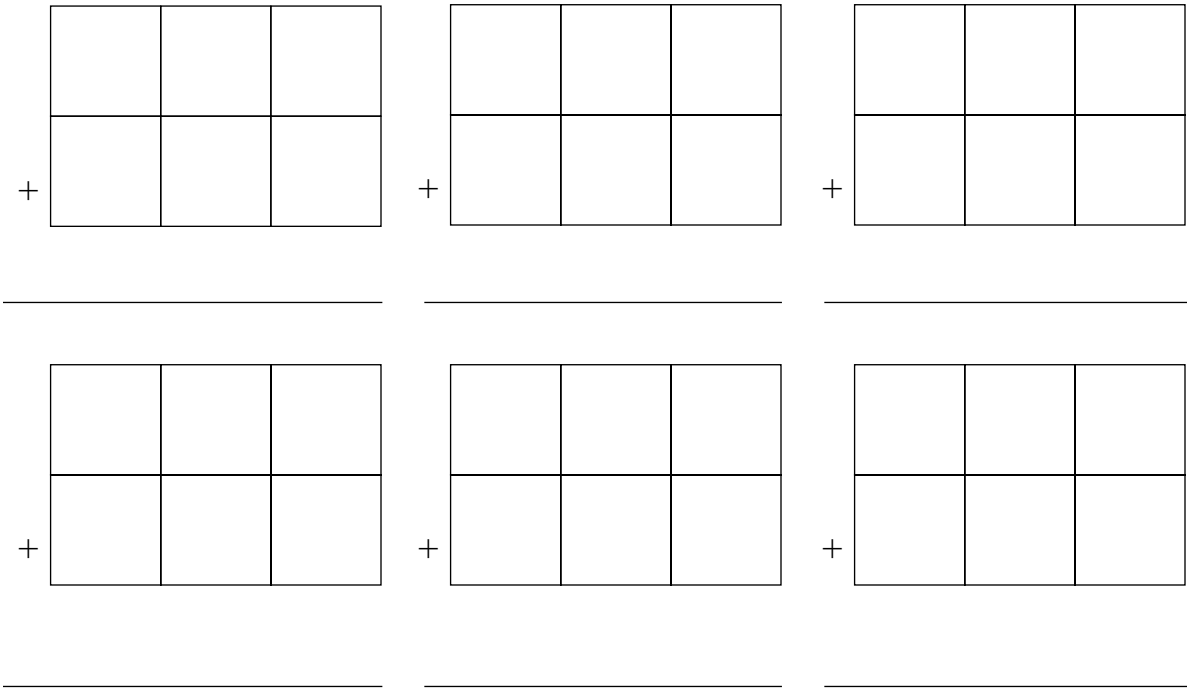
d) 476 + 335

Practice

1. Play this game with a partner.
You will need:
1 number cube

Take turns:

- Roll the number cube.
  Record the digit rolled in one of the boxes in your partner's first addition problem.
  Then, your partner rolls and records the digit in one of your boxes.
- After 6 turns each, add the numbers in your own problem.
  The player with the greater sum wins.
- Repeat the game with the other problems.



Stretch Your Thinking

The sum of 2 numbers is 427.
What might the numbers be?
Find 3 different answers.

UNIT 3

STUDENT BOOK 8 LESSON

Estimating Differences

Quick Review

At Home At School

Here are different strategies to estimate 86 – 43.

➤ Write each number to the closest 10.
86 is closest to 90.
43 is closest to 40.
Subtract: 90 – 40 = 50
So, 86 – 43 is about 50.

➤ Subtract only the digits in the tens place.
86 has 8 tens.
43 has 4 tens.
Subtract the tens: 8 tens – 4 tens = 4 tens, or 40
So, 86 – 43 is about 40.

➤ Use the number of tens for the number you subtract.
43 has 4 tens.
Subtract 4 tens: 86 – 40 = 46
So, 86 – 43 is about 46.

Try These

1. Estimate each difference.

a) 96 – 45 _____

b) 77 – 38 _____

c) 67 – 26 _____

d) 85 – 19 _____

e) 91 – 48 _____

f) 58 – 32 _____

2. Show 2 ways to estimate the difference: 72 – 53

_____

_____

Practice

1. Estimate each difference.

a)

Problem	Estimate
72 – 31	
58 – 19	
67 – 38	
98 – 43	
59 – 18	

b)

Problem	Estimate
76 – 41	
53 – 32	
89 – 41	
53 – 16	
25 – 9	

2. The estimated difference of 2 numbers is 25.
What might the numbers be?
Give 2 possible answers.

_____

3. Laslo peeled 87 potatoes. Marla peeled 52 potatoes.
About how many more potatoes did Laslo peel?

_____

4. There were 63 people on the city bus.
Twenty-five people got off the bus.
About how many people did not get off the bus?

_____

Stretch Your Thinking

You have learned 3 ways to estimate differences.
Make up an example where each way gives different estimates.

_____

Make up an example where each way gives the same estimate.

_____

UNIT 3

STUDENT BOOK 9 LESSON

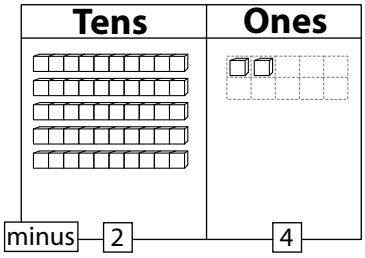
Subtracting 2-Digit Numbers

Quick Review

At Home At School

Here are different strategies to subtract 52 – 24.

➤ Think of using Base Ten Blocks.
Start with 52.
You cannot take away 4 ones.



Trade 1 ten for 10 ones.

$$\begin{array}{r} {}^{4}\cancel{5}\,{}^{12}\cancel{2} \\ -\ 24 \\ \hline \end{array}$$

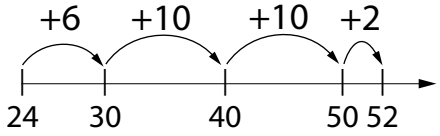
Subtract the ones.

$$\begin{array}{r} {}^{4}\cancel{5}\,{}^{12}\cancel{2} \\ -\ 24 \\ \hline 8 \end{array}$$

Subtract the tens.

$$\begin{array}{r} {}^{4}\cancel{5}\,{}^{12}\cancel{2} \\ -\ 24 \\ \hline 28 \end{array}$$

➤ Count up from 24 to 52.



6 + 10 + 10 + 2 = 28
So, 52 – 24 = 28

➤ Start by subtracting just the tens.
52 – 20 = 32
32 – 4 = 28
So, 52 – 24 = 28

Try These

1. Find each difference.

a) 75 – 4 = _____ **b)** 36 – 10 = _____ **c)** 88 – 15 = _____

d) 96 – 53 = _____ **e)** 44 – 7 = _____ **f)** 61 – 38 = _____

2. Subtract.

a) $\begin{array}{r} 57 \\ -\ 30 \\ \hline \end{array}$ **b)** $\begin{array}{r} 59 \\ -\ 43 \\ \hline \end{array}$ **c)** $\begin{array}{r} 71 \\ -\ 19 \\ \hline \end{array}$ **d)** $\begin{array}{r} 87 \\ -\ 48 \\ \hline \end{array}$ **e)** $\begin{array}{r} 62 \\ -\ 35 \\ \hline \end{array}$

Practice

1. Subtract.

a)	**b)**	**c)**	**d)**	**e)**
89	48	75	97	63
– 50	– 19	– 38	– 14	– 27

2. Subtract to find the answer to the riddle.
Match each letter to its answer.

Riddle: What do elves learn in school?

48 – 27 = _____ (O)

76 – 53 = _____ (S)

54 – 27 = _____ (E)

32 – 17 = _____ (A)

46 – 17 = _____ (T)

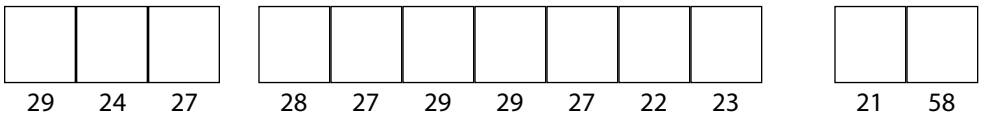
81 – 53 = _____ (L)

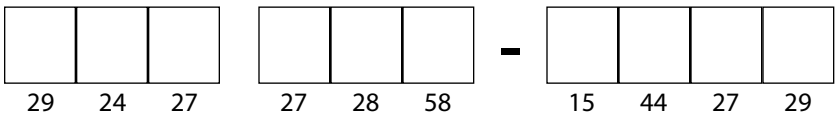
67 – 43 = _____ (H)

97 – 39 = _____ (F)

85 – 63 = _____ (R)

62 – 18 = _____ (B)





Stretch Your Thinking

The difference between two 2-digit numbers is 46.
What might the numbers be?
Find as many answers as you can.
Write a subtraction equation for each answer.

UNIT 3

STUDENT BOOK 10 LESSON

Using Mental Math to Subtract

Quick Review

At Home At School

You can use mental math to subtract.

Hannah collected 73 acorns.
She gave 36 acorns to Corey.
How many acorns did Hannah have left?

Here are some mental math strategies to find 73 – 36.

➤ Use a "friendly" number.

Think:

40 is close to 36.
73 – 40 = 33.
So, 73 – 36 = 37.

➤ Count up from 36 to 73.

Think:

36 + 4 is 40, plus 30 is 70,
plus 3 is 73.
4 + 30 + 3 = 37.
So, 73 – 36 = 37.

Hannah had 37 acorns left.

Try These

Use mental math.

1. Subtract.

a) 72 – 29 = _____ **b)** 68 – 39 = _____ **c)** 53 – 31 = _____

d) 43 – 27 = _____ **e)** 38 – 19 = _____ **f)** 86 – 27 = _____

2. Subtract.

a) 51 − 36 **b)** 92 − 64 **c)** 47 − 38 **d)** 63 − 27

Practice

1. Play this game with a partner.
You will need:
10 counters each
a calculator

Take turns.

- ➤ Cover 2 numbers on the grid with counters.
- ➤ Use mental math to subtract.
- ➤ Record your answer in the chart.
- ➤ Keep playing until all the numbers have been used.
- ➤ Use the calculator to find your total score.
- ➤ The player with the greater total wins.

82	31	68	55	17
27	75	99	43	60
14	57	32	89	77
65	24	90	45	27

Player 1	Player 2
Total:	**Total:**

Stretch Your Thinking

Describe 2 ways to use mental math to find 82 – 47.

UNIT 3

STUDENT BOOK 11 LESSON

Subtracting 3-Digit Numbers

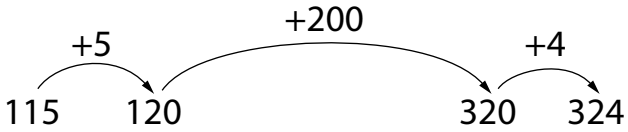
Quick Review

At Home At School

Mina has 115 pennies. Wayne has 324 pennies.
How many more pennies does Wayne have?

Here are 2 ways to find 324 – 115.

➤ Count up from 115 to 324.



5 + 200 + 4 = 209
So, 324 – 115 = 209

➤ Use place value.

You cannot take away 5 ones.	Trade 1 ten for 10 ones.	Subtract.
324 – 115	1 14 3~~2~~~~4~~ – 115	1 14 3~~2~~~~4~~ – 115 209

Wayne has 209 more pennies than Mina.

Try These

1. Subtract.

a) 476 – 223

b) 571 – 348

c) 624 – 235

d) 804 – 521

e) 783 – 428

f) 963 – 367

g) 426 – 325

h) 623 – 508

Practice

1. Subtract.

a) 294 − 38

b) 763 − 521

c) 486 − 247

d) 309 − 142

e) 550 − 319

f) 800 − 289

g) 638 − 259

h) 975 − 487

2. Use the data in the chart to answer each question.

Stamps Collected

Name	Number of Stamps
Noah	327
Reba	241
Lily	638
Lokahi	509
Cindy	400

a) How many more stamps did Cindy collect than Reba? _____

b) How many more stamps did Lily collect than Lokahi? _____

c) Who collected 86 more stamps than Reba? _____

d) Who collected 109 fewer stamps than Lokahi? _____

e) What is the difference between the greatest number of stamps collected and the least number? _____

3. Paolo and Nawel go to a campground 762 km from home. They travel 537 km by train. The rest of the trip is by bus.

How far do they travel by bus? _____

Stretch Your Thinking

Find two 3-digit numbers that subtract to leave 241.
Show your work.

UNIT 3

STUDENT BOOK 12 LESSON

Solving Addition and Subtraction Problems

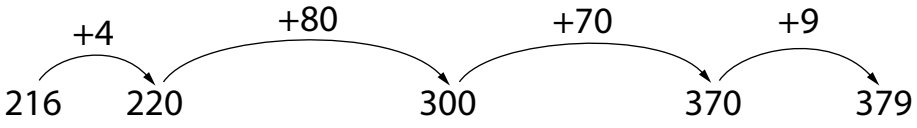
Quick Review

At Home At School

Vinh made 2 paper chains.
The red chain has 216 links. The blue chain has 379 links.

➤ How many links is that altogether?
Add to solve the problem.
216 = 200 + 10 + 6
379 = 300 + 70 + 9
200 + 300 = 500
10 + 70 = 80
6 + 9 = 15
500 + 80 + 15 = 595
There are 595 links altogether.

➤ How many more blue links than red links are there?
Subtract to solve the problem.
Count up from 216 to 379.



4 + 80 + 70 + 9 = 163
So, 379 – 216 = 163
There are 163 more blue links than red links.

Try These

1. Jaques saw 39 cardinals and 18 blue jays in the park.
How many birds did he see altogether?

_____

2. Cynthia has 147 cowrie shells and 286 puka shells.
How many more puka shells than cowrie shells does she have?

_____

Practice

1. a) Mr. Tanaka drove 376 km on Thursday and 489 km on Friday.
How far did he drive over the 2 days?

_____

b) How much farther did Mr. Tanaka drive on Friday than on Thursday?

_____

2. a) Forty-two Grade 3 children went to the zoo.
Thirty-eight Grade 2 children went with them.
How many children went to the zoo?

_____

b) Fifty-seven Grade 4 children joined the others for lunch at the zoo.
How many children had lunch together at the zoo?

_____

3. Use the data in the chart.

a) How many more tags did Grade 2 collect than Grade 1?

_____

b) How many more tags does Grade 3 have to collect to be even with Grade 4?

_____

Grade	Number of Tags
1	368
2	426
3	219
4	509

4. Sandra baked 128 gingerbread cookies for the bake sale.
Luca baked 196 gingerbread cookies.
How many cookies is that altogether?

_____

Stretch Your Thinking

Use these numbers: 3, 5, 6, 7, 8, 9
Arrange the numbers to make the greatest possible sum and the least possible difference.

+					–			

UNIT 4

STUDENT BOOK 1 LESSON

Measuring the Passage of Time

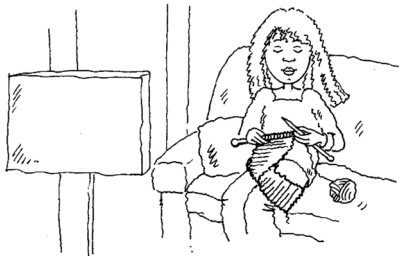
Quick Review

At Home At School

We use different units to measure how much time an activity takes.

It takes Oliver 1 TV commercial to button up his sweater.

It takes Sara 5 TV shows to knit a scarf for herself.



It takes Jane 20 pendulum swings to brush her teeth.

It takes Marvin 2 recesses to write a poem.

Try These

Work with a partner. Use your pendulum timer.

1. Measure how long it takes to do each activity.

a) cutting out a snowflake _____

b) counting back by 5s from 100 to 5 _____

c) doing 10 sit-ups _____

2. Find an activity that takes about 40 pendulum swings.
Describe your activity.

_____

Practice

1. Work with a partner.
Use your pendulum timer.
Estimate how long you think it will take to do each activity.
Then do the activity to check.
Record your data in the table.

Activity	Estimated Number of Swings	Actual Number of Swings
Singing the "Happy Birthday" song		
Drawing a picture of the teacher		
Adding 234 + 497		
Your choice _____		

2. Circle the better estimate.

a) playing a game of checkers – 1 recess or 4 recesses

b) combing your hair – 1 TV commercial or 7 TV commercials

c) building a snowman – 25 pendulum swings or 1 recess

Stretch Your Thinking

Name an activity and a unit you could use to measure the time the activity takes.

_____

Do the activity and measure how long it takes. Record your results.

_____

UNIT 4

STUDENT BOOK 2 LESSON

Exploring Units of Time

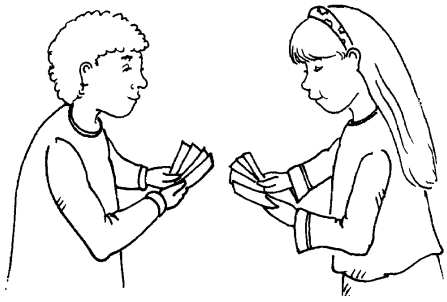
Quick Review

At Home At School

The **minute** (min) is a short unit of time.

It takes about **1 min** to count to 100.

It takes about **5 min** to eat an apple.



It takes about **15 min** to play a game of Go Fish.

The **hour** (h) is a longer unit of time.
It takes about 1 h to bake a cake.

The **second** (s) is a very short unit of time.
It takes 1 s to say, "Good morning."

1 min = 60 s
1 h = 60 min

Try These

1. Circle the better estimate for how long each activity would take.

a) Make a peanut butter sandwich. 2 min or 2 h

b) Take a shower. 10 min or 10 s

c) Walk the dog. 20 min or 20 h

d) Sing "O Canada." 2 s or 2 min

Practice

1. Would you use minutes, hours, or seconds to measure how long it takes to:

a) eat your lunch? _____

b) print your name? _____

c) walk the dog? _____

d) paint the kitchen? _____

2. It took Lulu 48 min to clean her room.
It took Sven 1 h to clean his room.

Who took more time to clean? _____

How much more time? _____

3. Name an activity that can be done in:

a) 1 min _____

b) 1 h _____

c) 5 min _____

d) 10 s _____

4. Use >, <, or =.

a) 1 h ☐ 60 min

b) 50 s ☐ 1 min

c) 47 min ☐ 1 h

d) 1 min ☐ 60 s

Stretch Your Thinking

Lee does his chores before he leaves for school.
About how long do you think it will take Lee to do his chores? Explain.

Lee's Morning Chores

Make the bed ✔
Feed the dog ✔
Pack lunch ✔

_____

_____

UNIT 4

STUDENT BOOK 3 LESSON

Exploring the Calendar

Quick Review

At Home At School

JANUARY						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

FEBRUARY						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

MARCH						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

APRIL						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

MAY						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JUNE						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JULY						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

AUGUST						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Each calendar page shows the days and weeks of one month of the year.
There are 4 months with 30 days.
There are 7 months with 31 days.
February has 28 days.

Every 4 years, there are 29 days in February.

Try These

Use the calendar above.

1. a) Name the months that have 30 days.

_____

b) Name the months that have 31 days.

_____

2. Name the date that is 9 days after May 3rd. _____

Practice

Use the calendar in *Quick Review*.

1. **a)** How many Fridays are there in April? _____

b) How many days are there in May and June together? _____

c) Which months end on a Friday? _____

d) Which months start on a Saturday? _____

e) Which is the eleventh month? _____

2. Name the date that is:

a) 9 days after September 29th _____

b) 3 weeks before July 3rd _____

c) 6 months after March 25th _____

d) 6 days before April 1st _____

3. A bird laid eggs on May 17th. The eggs hatched 3 weeks later.
Name the day and the date the eggs hatched.

_____

4. Terry's and Moe's birthdays are exactly 7 weeks apart.
Terry's birthday is on August 19th. When might Moe's birthday be?
Give 2 answers.

_____

Stretch Your Thinking

Suppose February has 29 days. Explain how you can find how many days there are in the year without counting or adding.

_____

_____

_____

UNIT 4

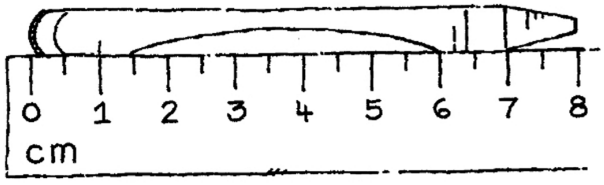
STUDENT BOOK 4 LESSON

Using a Ruler

Quick Review

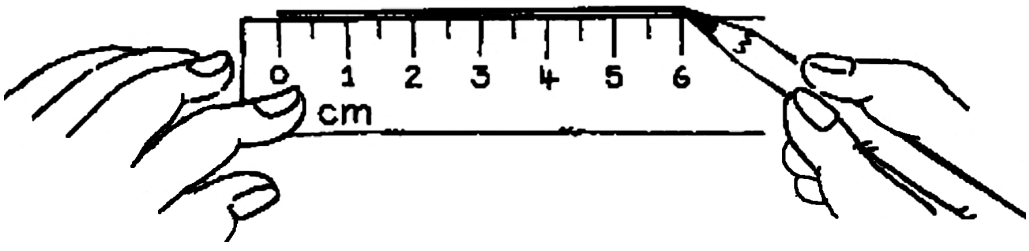
At Home At School

This ruler is marked in **centimetres** (cm).
One centimetre is a standard unit of length.



To measure with a ruler, line up the edge of the object at the 0-cm mark.
The crayon is 8 cm long.

To draw a 6-cm line with a ruler, start at 0 cm.
Trace along the ruler to the 6-cm mark.



Try These

Use a centimetre ruler.

1. Measure the length of each shape.

a) _____ cm

b) _____ cm

2. Draw a line with each length.

a) 4 cm

b) 8 cm

Practice

Use a centimetre ruler for questions 1 and 2.

1. Find 4 classroom objects that are each less than 30 cm long. Measure each object. Record your results.

a) Object: _____ Length: _____

b) Object: _____ Length: _____

c) Object: _____ Length: _____

d) Object: _____ Length: _____

2. Draw a line with each length.

a) 6 cm

b) 3 cm

c) 5 cm

3. Without using a ruler, draw a line with about each length.

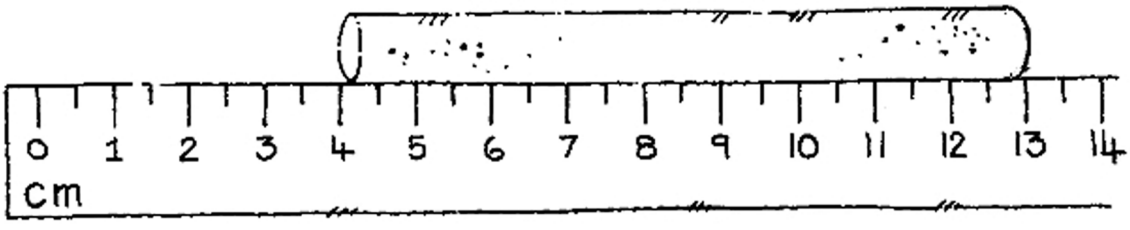
a) 9 cm

b) 4 cm

c) 7 cm

Stretch Your Thinking

How long is the chalk? How do you know?



UNIT 4

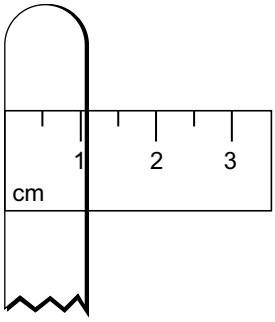
STUDENT BOOK 5 LESSON

Estimating and Measuring with Centimetres

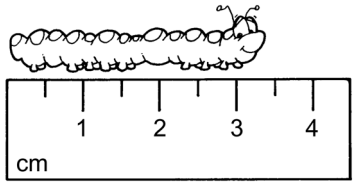
Quick Review

At Home At School

Centimetres (cm) can be used to measure the **length**, **width**, or **height** of an object.



A Popsicle stick is about 1 cm wide.
You can use the width of a Popsicle stick as a **referent** to help you think about centimetres.



This caterpillar is between 3 cm and 4 cm long.
The length is closer to 3 cm than to 4 cm.
The caterpillar is about 3 cm long.

Try These

1. Draw a line to match each item with its estimate.

a)	the length of a ladybug	about 10 cm
b)	the width of your math book	about 100 cm
c)	the length of a Popsicle stick	about 1 cm
d)	the width of the classroom window	about 22 cm

2. **a)** Estimate the length of this line.

Estimate: _____

b) Measure the line.
Length: _____

Practice

1. Play this game with a partner.
You will need:
2 markers
a collection of objects (e.g., a straw, a stapler, a shoe, a pencil)

Place your markers on Start.

- ➤ Player 1: Choose an object and estimate its length.
- ➤ Player 2: Measure the object. Find the difference between your opponent's estimate and your measurement. Move your marker that many spaces on the game board.
- ➤ Switch roles and continue playing.
  The first player to reach Finish is the winner.

  Play the game again. Use a different collection of objects.

Start Finish

Stretch Your Thinking

Estimate the length of a line of 25 paper clips.
Then measure a line of 25 paper clips. Record your results.

Estimate: _____ Measurement: _____

UNIT 4

STUDENT BOOK 6 LESSON

Estimating and Measuring with Metres

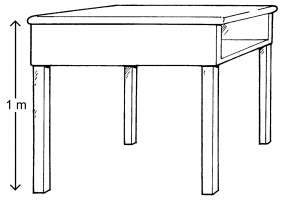
Quick Review

At Home At School

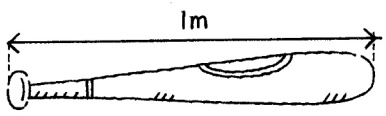
One **metre** (m) is a length of 100 cm. 1 m = 100 cm

Here are some referents for one metre.

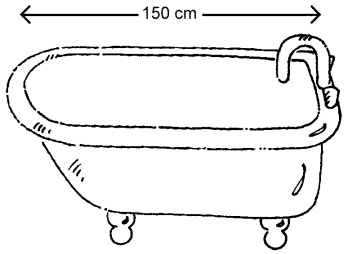
A desk is about 1 m tall.



A baseball bat is about 1 m long.



A bathtub is about 150 cm long.
You can write this as 1 m 50 cm.



Try These

1. Draw a line to match each item with its estimate.

a) the height of a classroom wall	about 20 m
b) the width of a hockey net	about 3 m
c) the length of a school hallway	about 5 m
d) the height of a giraffe	about 1 m

2. Would you measure each item in centimetres or metres?

a) the height of a flagpole _____

b) the length of a mouse _____

c) the length of a whale _____

d) the width of a hand _____

Practice

1. Find an object that fits each description.
Measure each object.
Record the measurement in metres and centimetres.
Complete the chart.

Description	Object	Measurement
about 1 m long		
between 1 m and 2 m long		
longer than your arm		
about as tall as you		

2. Work with a partner.

- ➤ Estimate the length 4 m.
  Put 2 pieces of tape on the floor about 4 m apart.
- ➤ Measure to check your estimate.
- ➤ Record the measurement in the chart.
- ➤ Repeat with the other lengths in the chart.

Estimate	Measurement
4 m	
6 m	
5 m	
2 m	
3 m	

Stretch Your Thinking

Explain how you could find the approximate length of a hallway without using a metre stick.

UNIT 4

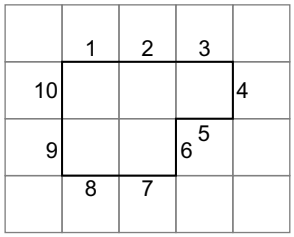
STUDENT BOOK 8 LESSON

Measuring Perimeter in Centimetres

Quick Review

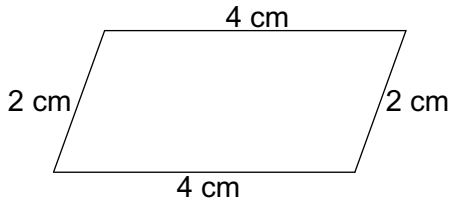
At Home At School

➤ To find the perimeter of a shape drawn on grid paper, count the units along the outside of the shape.



The perimeter is 10 units.

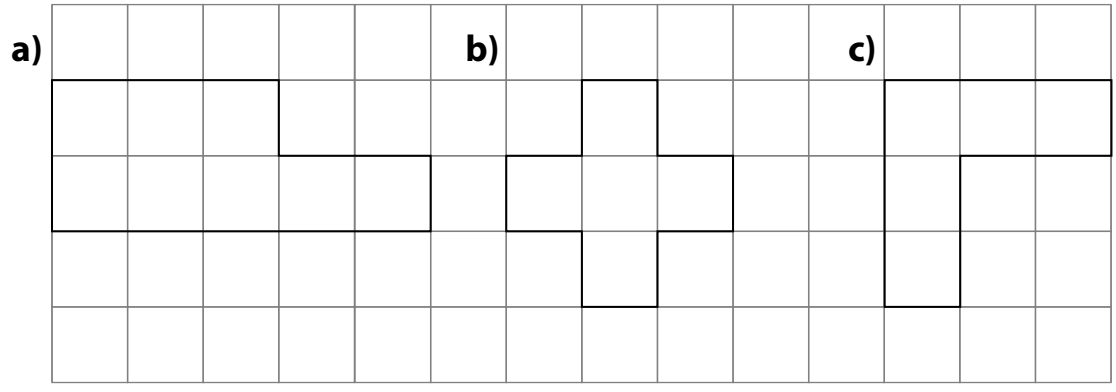
➤ To find the perimeter of a shape not drawn on grid paper, use a ruler. Measure each side. Then add the lengths.



4 cm + 2 cm + 4 cm + 2 cm = 12 cm
The perimeter is 12 cm.

Try These

1. Find the perimeter of each shape on 1-cm grid paper.



Perimeter: _____ Perimeter: _____ Perimeter: _____

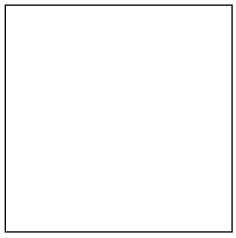
2. Measure the perimeter of this shape.

Perimeter: _____

Practice

1. Work with a partner. Take turns.
Choose a shape. Estimate its perimeter.
Then measure and record the perimeter.

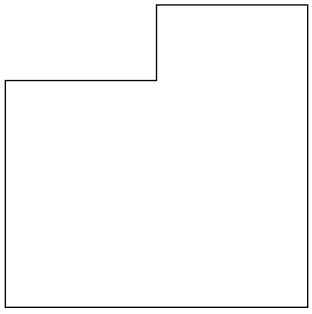
a)



Estimate: _____ cm

Perimeter: _____ cm

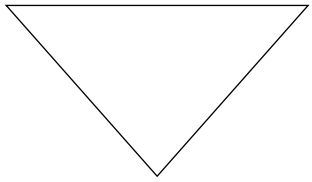
b)



Estimate: _____ cm

Perimeter: _____ cm

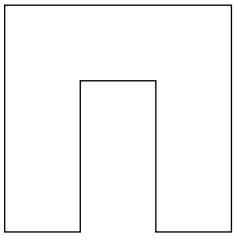
c)



Estimate: _____ cm

Perimeter: _____ cm

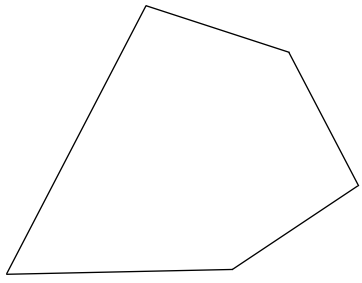
d)



Estimate: _____ cm

Perimeter: _____ cm

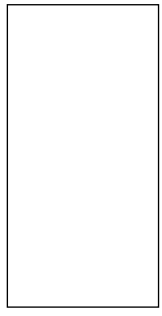
e)



Estimate: _____ cm

Perimeter: _____ cm

f)

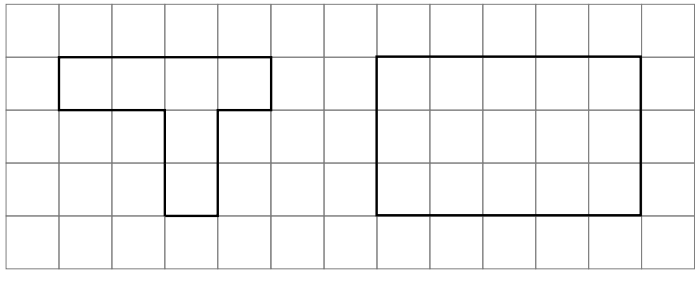


Estimate: _____ cm

Perimeter: _____ cm

Stretch Your Thinking

These 2 shapes have different perimeters. Change one of them so that their perimeters are equal.



UNIT 4

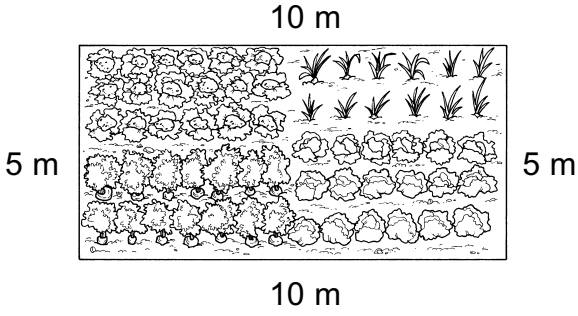
STUDENT BOOK 9 LESSON

Measuring Perimeter in Metres

At Home At School

Quick Review

You can use metres to measure the perimeter of a large shape.

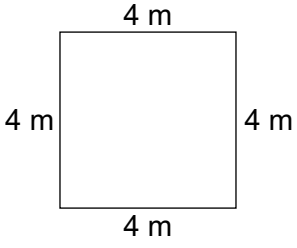


Perimeter = 10 m + 5 m + 10 m + 5 m = 30 m
The perimeter of the garden is 30 m.

Try These

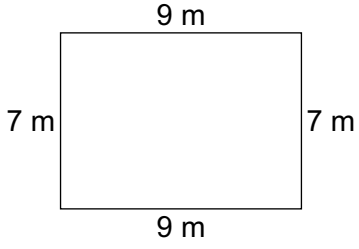
1. Find the perimeter of each shape.

a)



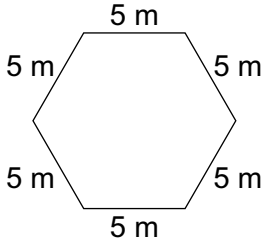
Perimeter: _____

b)



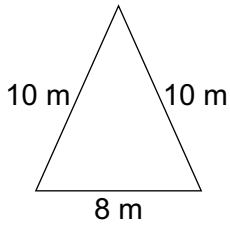
Perimeter: _____

c)



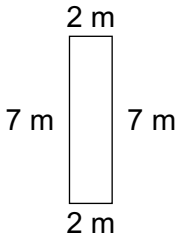
Perimeter: _____

d)



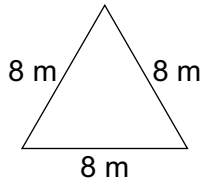
Perimeter: _____

e)



Perimeter: _____

f)



Perimeter: _____

2. Use your answers from question 1.
Order the perimeters from least to greatest.

_____

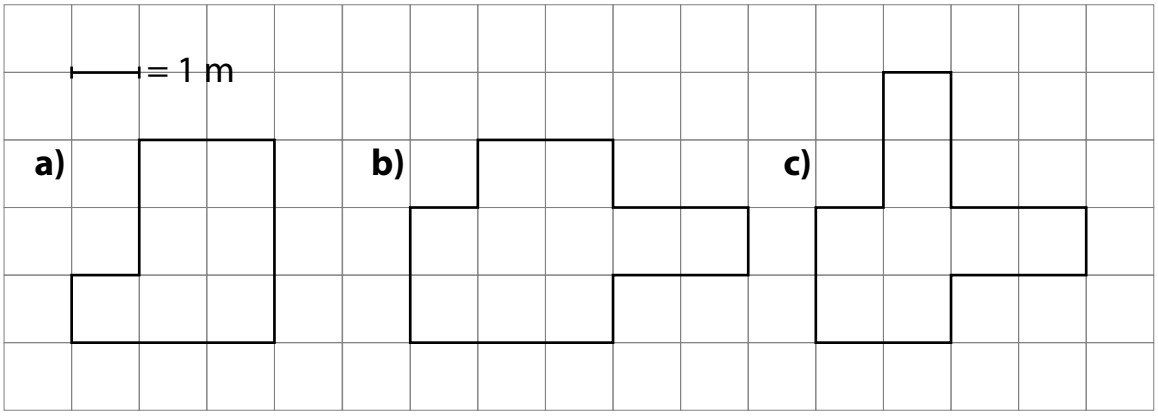
Practice

1. Would you measure the perimeter of each item in centimetres or metres?

a) a baseball diamond _____ **b)** a pencil case _____

c) a page in a book _____ **d)** a farmer's field _____

2. Find the perimeter of each shape.
The length of each square on the grid represents 1 m.



Perimeter: _____ Perimeter: _____ Perimeter: _____

3. Gabriel walked 100 m around the perimeter of a rectangular playground.
How long and how wide could the playground be?
Give 3 different answers.

_____

_____

Stretch Your Thinking

The perimeter of a garden is 24 m. All the sides are equal.
What shape might the garden be? Give as many answers as you can.
For each answer, record the length of each side of the garden.

_____

_____

_____

UNIT 4

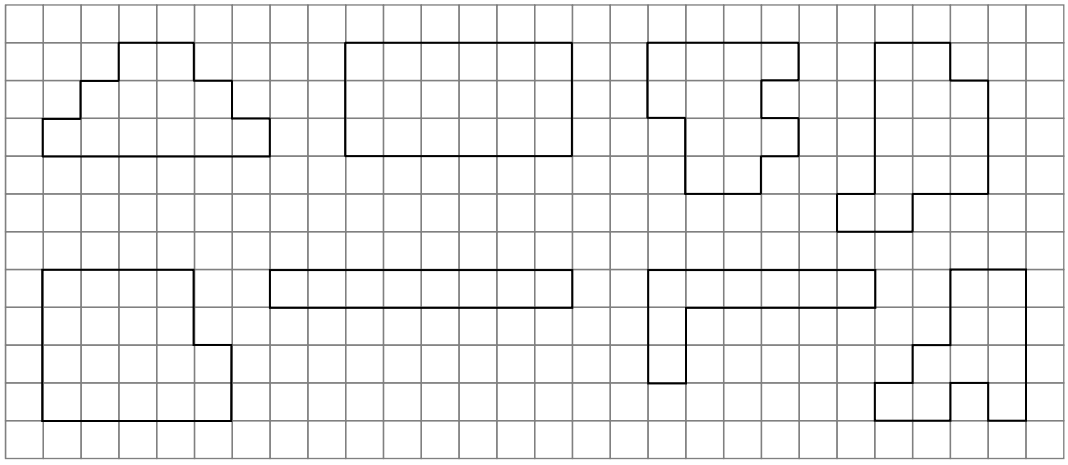
STUDENT BOOK 10 LESSON

Exploring Shapes with Equal Perimeters

Quick Review

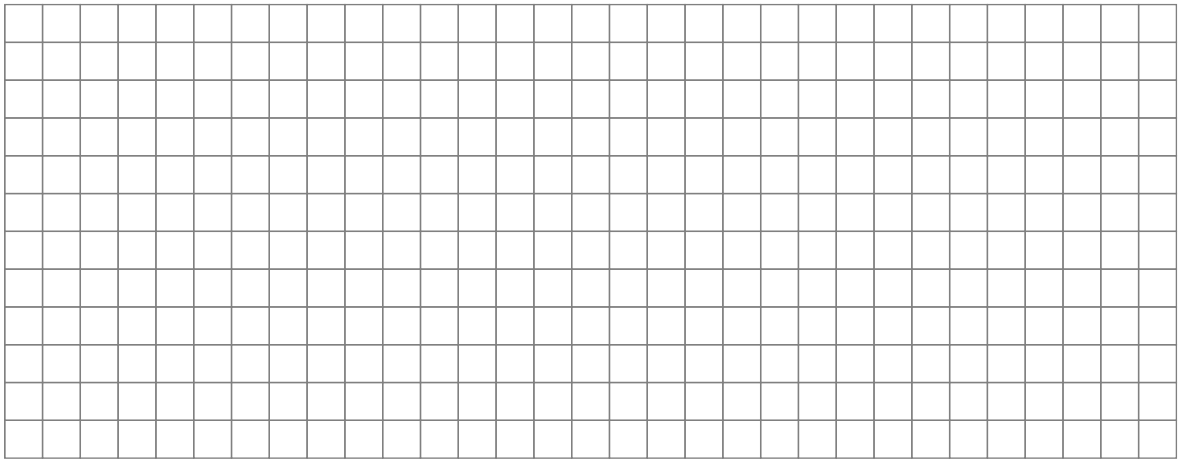
At Home At School

Different shapes can have the same perimeter.
Each of these shapes has perimeter 18 units.



Try These

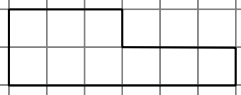
1. Draw 4 different shapes with perimeter 12 units.



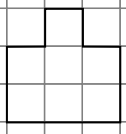
Practice

1. Find the perimeter of each shape.
Draw a different shape with the same perimeter.

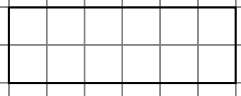
a) Perimeter: _____



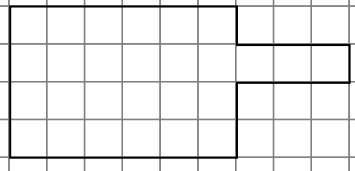
b) Perimeter: _____



c) Perimeter: _____



d) Perimeter: _____



Stretch Your Thinking

Draw as many shapes as you can with perimeter 10 units.

UNIT 4

STUDENT BOOK 11 LESSON

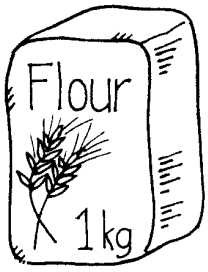
Exploring Mass: The Kilogram

Quick Review

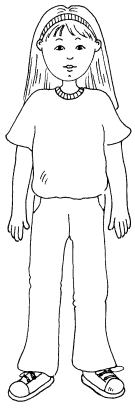
At Home At School

When you measure how heavy an object is, you measure its **mass**.
The **kilogram** (kg) is a unit of mass.

This bag of flour has a mass of 1 kg.

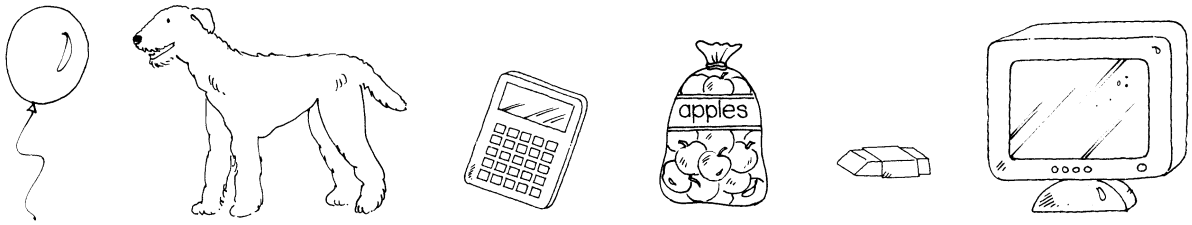


This Grade 3 student has a mass of about 25 kg.



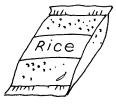
Try These

1. Circle the objects that have a mass of less than 1 kg.



2. Circle the better estimate.

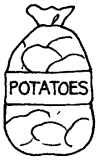
a) 3 kg or 60 kg



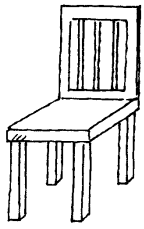
b) 6 kg or 75 kg

c) 8 kg or 80 kg

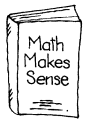
d) 2 kg or 25 kg



e) 1 kg or 6 kg

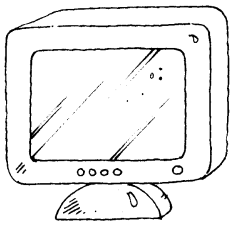


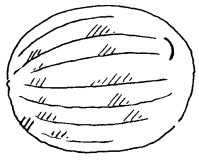
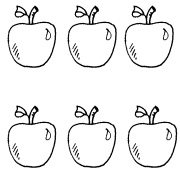
f) 1 kg or 50 kg



Practice

1. Match each item with its estimated mass: 1 kg, 3 kg, 10 kg, 40 kg

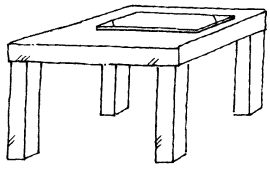
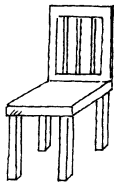
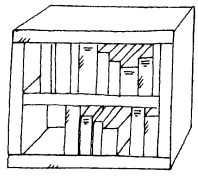


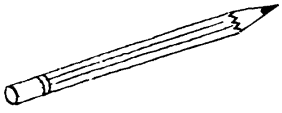
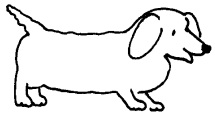
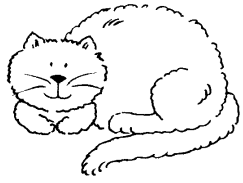
_____ _____ _____ _____

2. Circle 2 objects that have about the same mass.

a)

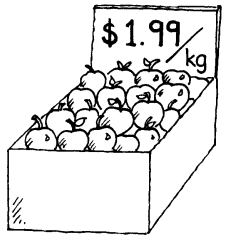




b)

3. About how many kilograms of apples can you buy with a $10 bill?

_____



Stretch Your Thinking

Harry needs to buy 10 kg of safety salt.
Find as many ways as you can that
Harry could buy the salt.

_____

_____

UNIT 4

STUDENT BOOK 12 LESSON

Exploring Mass: The Gram

At Home At School

Quick Review

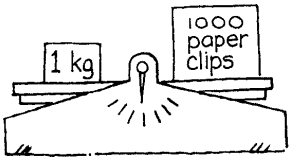
The **gram** (g) is a small unit of mass.
The mass of an object you can hold in the palm of your hand is usually measured in grams.

A paper clip has a mass of about 1 g.

Eyeglasses have a mass of about 100 g.

It takes 1000 g to balance 1 kg.

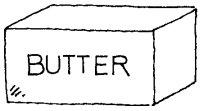
1000 g = 1 kg



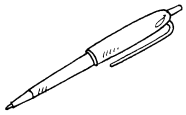
Try These

1. Circle the better estimate.

a) 1 g or 454 g



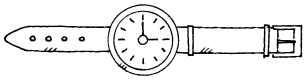
b) 5 g or 200 g



c) 150 g or 900 g

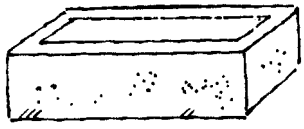
2. Match each item with its estimated mass: 1 g, 50 g, 1000 g

a)



b)

c)

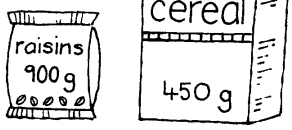


_____ _____ _____

Practice

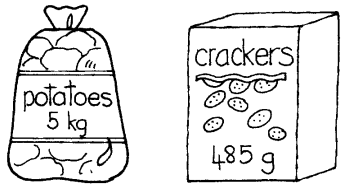
1. Circle the package with the greater mass.

a)



b)

c)



2. Which unit would you use to measure each mass: gram or kilogram?

a) a penny _____ **b)** a guitar _____

c) a pony _____ **d)** a box of crayons _____

3. Order these items from least to greatest mass.

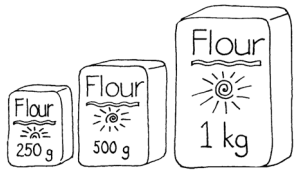
_____

4. Louanne feeds her cat 200 g of food each day.
How many days will this bag of food last?

_____

Stretch Your Thinking

Ross needs 2 kg of flour to make play dough.
Find 4 different ways he could buy the flour.



_____

_____

UNIT 5

STUDENT BOOK 1 LESSON

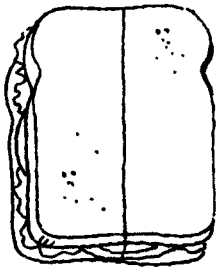
Exploring Equal Parts

Quick Review

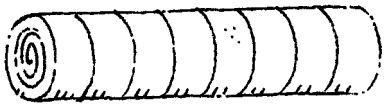
At Home At School

When we share, we can make **equal parts**.

- This sandwich is divided into equal parts.
  It shows equal shares for 2 people.



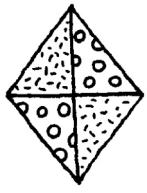
- This jellyroll is cut into 8 equal slices.
  It shows equal shares for 8 people.



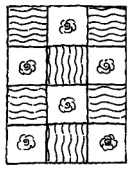
Try These

1. Circle each picture that shows equal parts.

a)

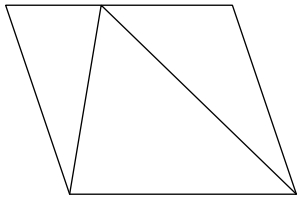


b)

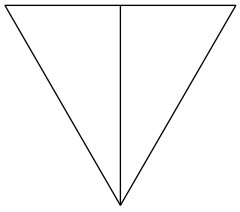


c)

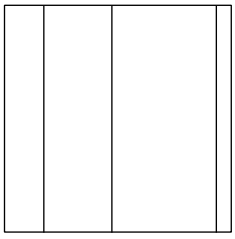
d)



e)



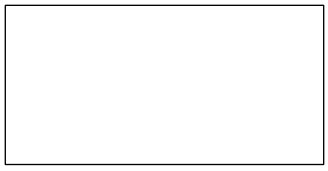
f)



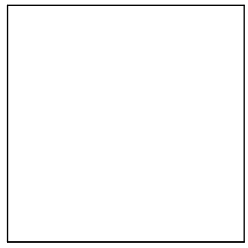
Practice

1. Divide each shape to show equal parts.

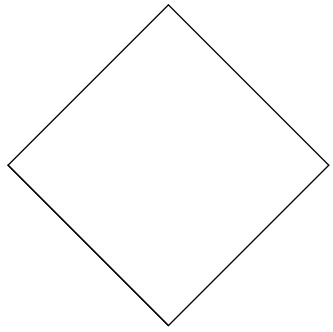
a) 2 equal parts



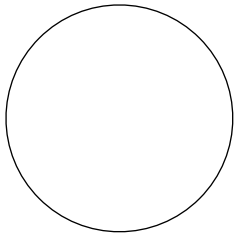
b) 3 equal parts



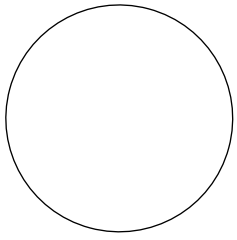
c) 4 equal parts



d) 4 equal parts



e) 2 equal parts



f) 3 equal parts

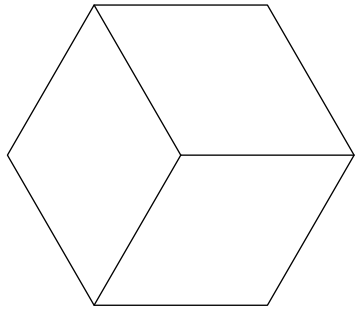
2. Draw a picture of a shape divided into equal parts.

a) 2 equal parts

b) 4 equal parts

Stretch Your Thinking

This shape shows 3 equal parts.
Make it show 6 equal parts.



UNIT 5

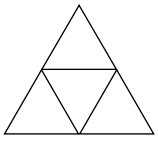
STUDENT BOOK 2 LESSON

Equal Parts of a Whole

Quick Review

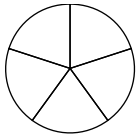
At Home At School

Here are some ways to divide **1 whole** into equal parts.
You can name equal parts with **fractions**.



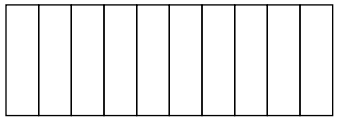
4 equal parts

4 fourths or **4 quarters**



5 equal parts

5 fifths



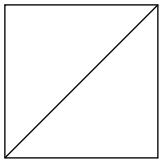
10 equal parts

10 tenths

Try These

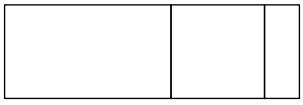
1. Does each shape show equal parts? Circle *Yes* or *No*.

a)



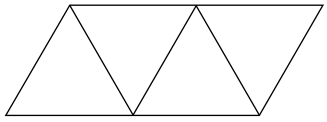
Yes No

b)



Yes No

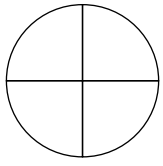
c)



Yes No

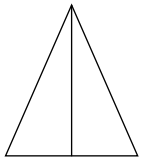
2. Name the equal parts of each whole.

a)



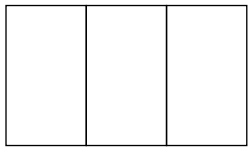
_____

b)



_____

c)



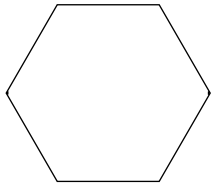
_____

3. Divide each shape to show equal parts.

a)

3 thirds

b)



2 halves

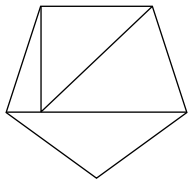
c)

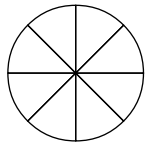
4 fourths

Practice

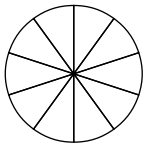
1. Circle the shapes that show equal parts.

a) 

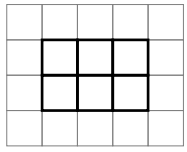
b) 

c) 

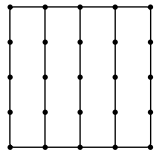
2. Name the equal parts of each whole.

a) 

_____

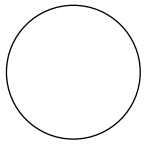
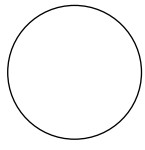
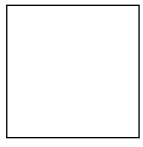
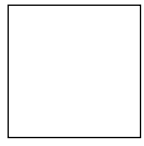
b) 

_____

c) 

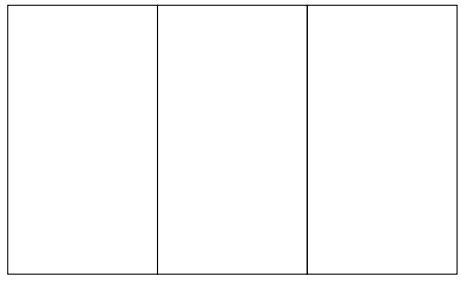
_____

3. Divide each shape to show equal parts. Show 2 different ways.

Equal Parts	First Way	Second Way
Halves		
Quarters		
Eighths		

Stretch Your Thinking

This rectangle shows thirds.
Make it show sixths.



UNIT 5

STUDENT BOOK 3 LESSON

Fractions of a Whole

Quick Review

At Home At School

You can fold a strip of paper to show fractions.

4 fourths make 1 whole.

3 thirds make 1 whole.

This strip shows tenths because all the parts are equal and there are 10 of them.

10 tenths make 1 whole.

Once you divide the length into equal parts, you can count the parts.

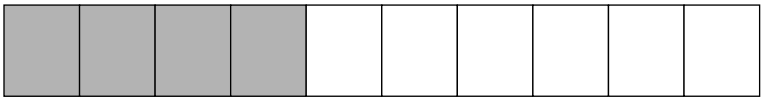
2 fifths are shaded. 3 fifths are not shaded.

Try These

1. What fraction of each strip is shaded?

a)

b)

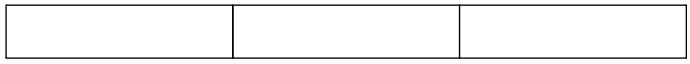


c)

Practice

1. Colour to show each fraction.

a) 2 thirds

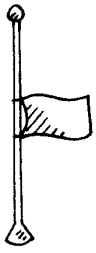


b) 5 eighths

c) 3 fifths

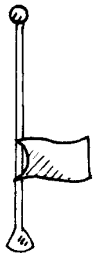
2. Estimate. About how far up the flagpole is each flag?

a)



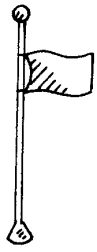
_____

b)



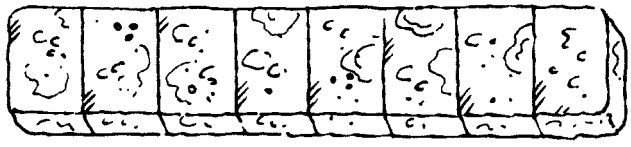
_____

c)



_____

3. Inez and Toby shared this fruit bar. Inez ate 3 eighths of the bar and Toby ate the rest.
What fraction did Toby eat? _____



4. Estimate to colour the fraction of each strip.

a) 1 half

b) 3 fourths

Stretch Your Thinking

Draw pictures to show how 1 quarter of a strip of paper can be longer than 3 quarters of another strip.

UNIT 5

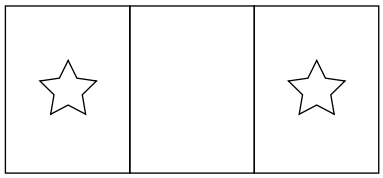
STUDENT BOOK 4 LESSON

Naming and Writing Fractions

Quick Review

At Home At School

This flag is divided into 3 equal parts, so it shows thirds.



Two of the 3 sections of the flag have stars, so the fraction is $\frac{2}{3}$.

$\frac{2}{3}$

The **top number** of a fraction tells how many equal parts are counted.

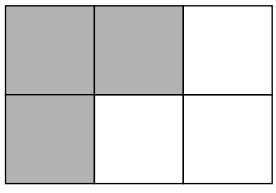
The **bottom number** of a fraction tells how many equal parts are in the whole.

2 is the **numerator**. 3 is the **denominator**.

Try These

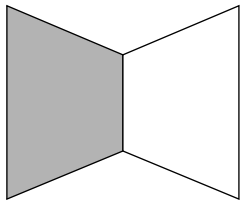
1. Write a fraction for each shaded part.

a)



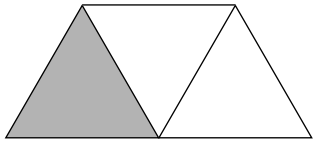
_____

b)



_____

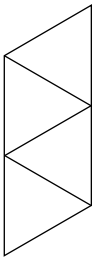
c)



_____

2. Colour each shape to show the fraction.

a)

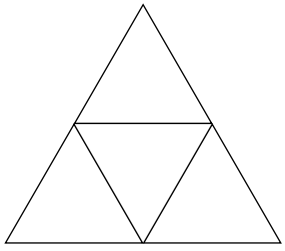


$\frac{1}{4}$

b)

$\frac{2}{5}$

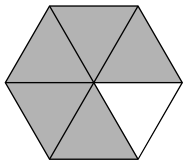
c)



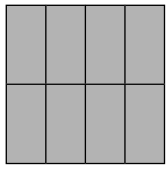
$\frac{3}{4}$

Practice

1. Write a fraction for each shaded part.

a) 

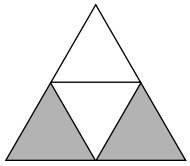
_____

b) 

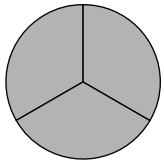
_____

c) 

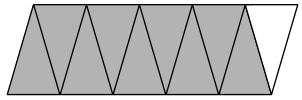
_____

d) 

_____

e) 

_____

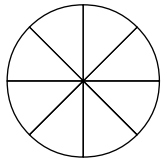
f) 

_____

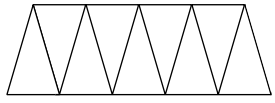
2. Colour each shape to show the fraction.

a) 

$\frac{6}{10}$

b) 

$\frac{3}{8}$

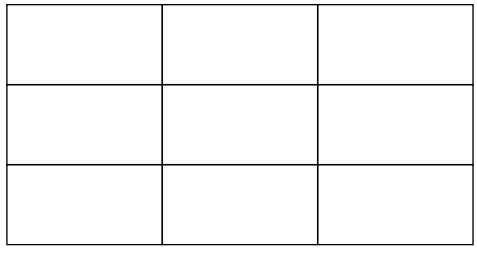
c) 

$\frac{5}{9}$

3. Colour the sections of this quilt.
Use 4 different colours.
Use fractions to describe the quilt.

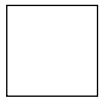
_____

_____



Stretch Your Thinking

This shape represents $\frac{1}{3}$ of a whole.
Show what the whole might look like.



UNIT 5

STUDENT BOOK 5 LESSON

Comparing Fractions

Quick Review

At Home At School

To compare fractions with the same denominators, look at the numerators.

$\frac{5}{6}$ has more sixths than $\frac{3}{6}$.

So, $\frac{5}{6} > \frac{3}{6}$

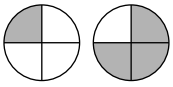
$\frac{3}{6}$ has fewer sixths than $\frac{5}{6}$.

So, $\frac{3}{6} < \frac{5}{6}$

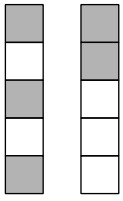
Try These

1. Look at each pair of shapes.
Use >, <, or = to compare the shaded parts.

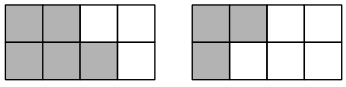
a)



b)



c)



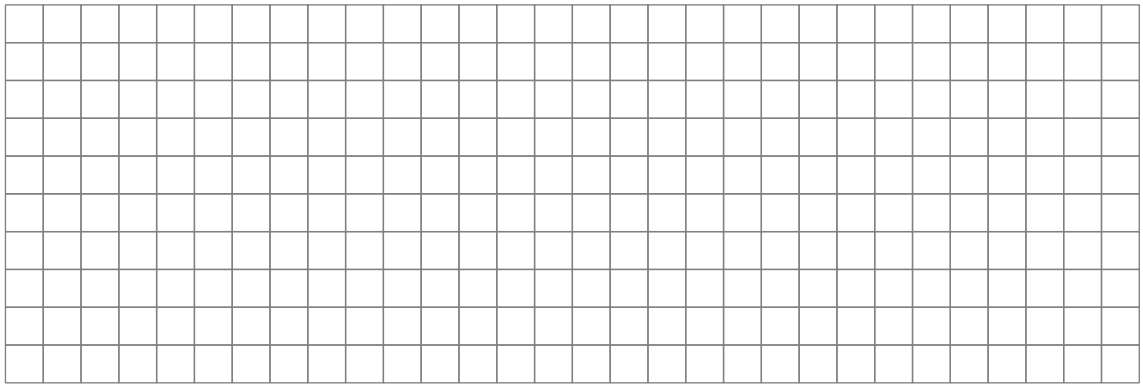
_____ _____ _____

2. Draw a picture to show which is greater: $\frac{3}{4}$ or $\frac{4}{4}$.

Practice

1. Draw and shade shapes on the grid to show which is greater.

a) $\frac{4}{5}$ or $\frac{3}{5}$ **b)** $\frac{8}{10}$ or $\frac{9}{10}$ **c)** $\frac{3}{3}$ or $\frac{2}{3}$



2. On Saturday, Jared did chores for $\frac{5}{6}$ of an hour, and Sylvia did chores for $\frac{4}{6}$ of an hour.
Which child spent more time doing chores? _____
Draw a picture to show how you know.

3. Use >, <, or = .

a) $\frac{7}{10}$ _____ $\frac{3}{10}$ **b)** $\frac{4}{5}$ _____ $\frac{5}{5}$ **c)** $\frac{4}{8}$ _____ $\frac{1}{8}$

Stretch Your Thinking

Write a fraction with the same denominator to make a true statement.

a) $\frac{4}{7} >$ _____ **b)** $\frac{1}{2} <$ _____ **c)** $\frac{3}{6} =$ _____

d) _____ $< \frac{7}{8}$ **e)** _____ $= \frac{6}{10}$ **f)** _____ $> \frac{2}{5}$

UNIT 6

STUDENT BOOK 1 LESSON

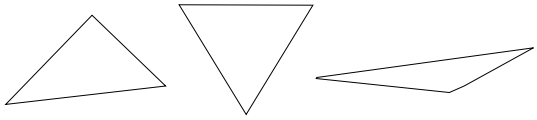
Naming Polygons

Quick Review

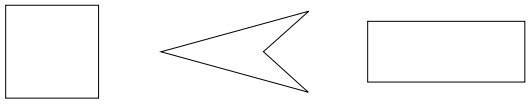
At Home At School

Polygons have straight sides that are joined.
Here are some polygons.

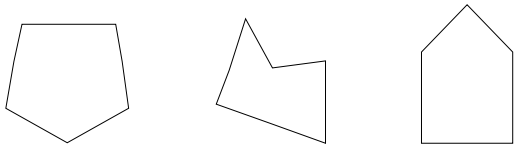
A **triangle** has 3 sides.



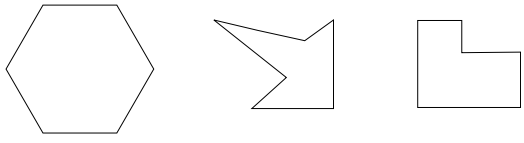
A **quadrilateral** has 4 sides.



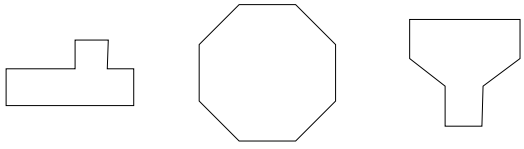
A **pentagon** has 5 sides.



A **hexagon** has 6 sides.



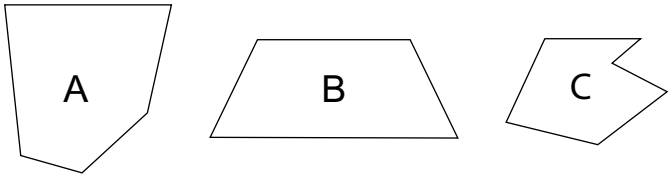
An **octagon** has 8 sides.



Try These

1. Use the polygons. Find:

a) a quadrilateral _____
b) a hexagon _____
c) a pentagon _____

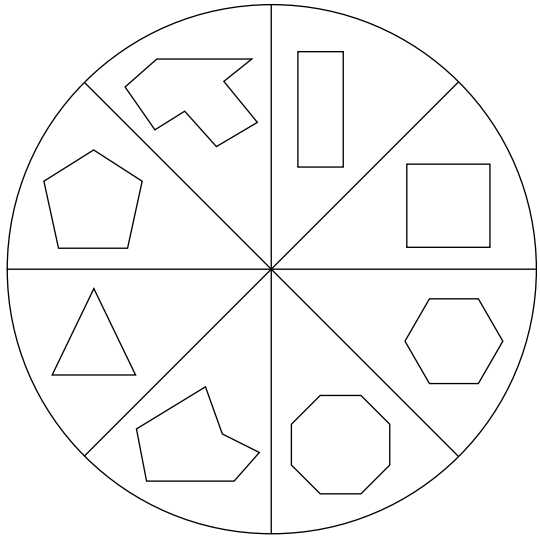


Practice

1. Play this game with a partner.
You will need:
16 small counters or beads
a paper clip and pencil for the spinner

- ➤ Put 2 counters in each box on the game board.
- ➤ Take turns spinning the spinner. Name the polygon.
- ➤ Take 1 counter from the box with the polygon's name.
  If you spin a polygon with no counters left in its box, you lose a turn.
- ➤ Keep playing until all the counters have gone.
  The player with more counters is the winner.

octagon	triangle
hexagon	rectangle
square	hexagon
pentagon	octagon



Stretch Your Thinking

Draw 3 different quadrilaterals.

How do you know you drew quadrilaterals?

_____

_____

UNIT 6

STUDENT BOOK 2 LESSON

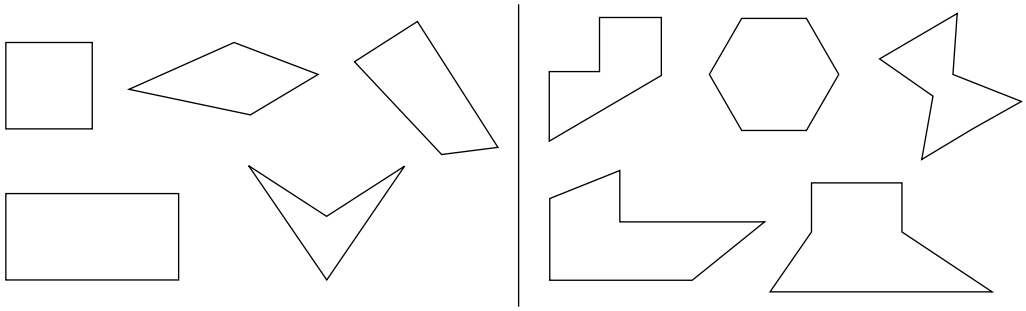
Sorting Polygons

Quick Review

At Home At School

You can sort polygons by the numbers of sides.

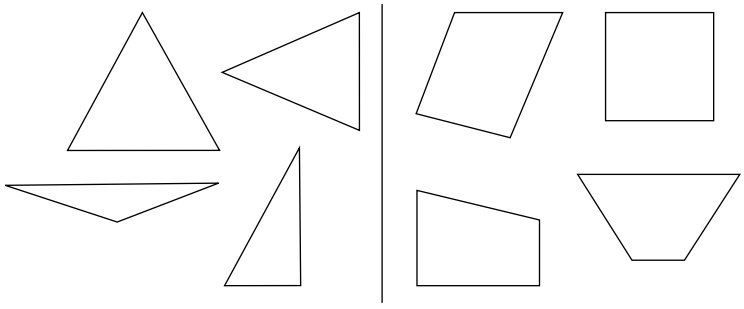
➤ The sorting rule is:
Polygons with 4 sides and polygons with 6 sides



Try These

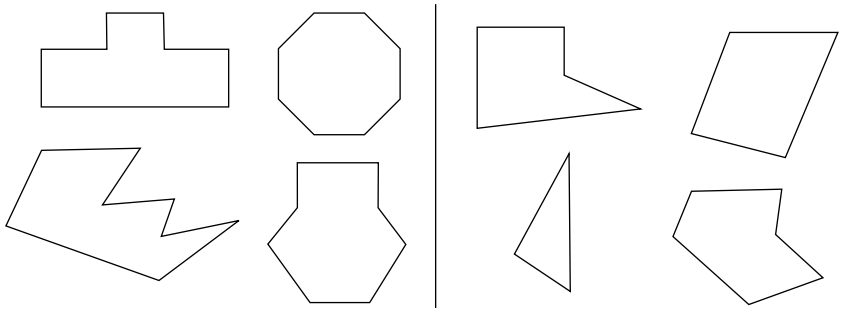
1. Write each sorting rule.

a)



_____

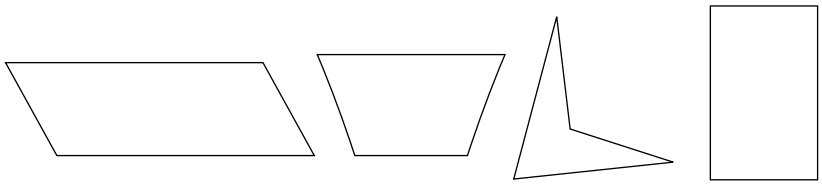
b)



_____

Practice

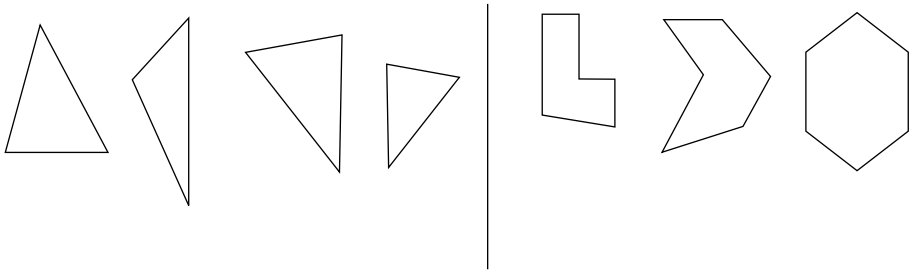
1. a) Draw a polygon that belongs in this set.



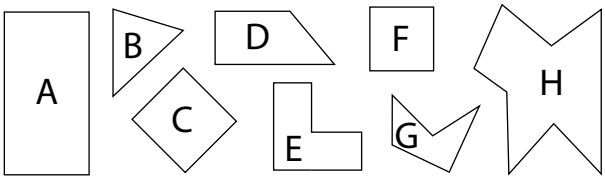
b) How do you know your polygon belongs? _____

_____

2. Pooja sorted polygons into 2 sets by the numbers of sides.
Draw 2 more polygons in each set.



3. Sort the polygons.
Use the letters to record your sorting.



Stretch Your Thinking

Choose a sorting rule. Draw 2 sets of polygons to show your rule.

Sorting rule: _____

_____

UNIT 6

STUDENT BOOK 4 LESSON

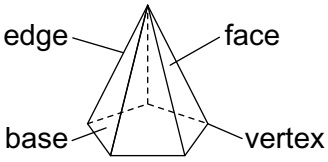
Describing Prisms and Pyramids

Quick Review

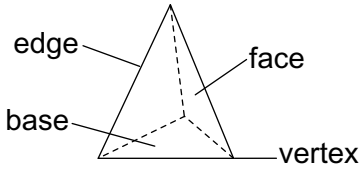
At Home At School

➤ A pyramid has 1 **base**. The base is a **face**.
A pyramid has some triangular faces.

This pyramid has 6 vertices, 10 edges, and 6 faces:
- 1 pentagon
- 5 triangles

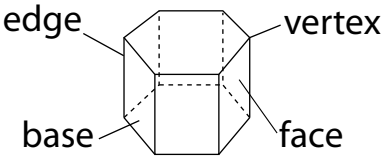


This pyramid has 4 vertices, 6 edges, and 4 faces:
- 4 triangles

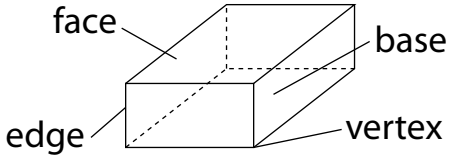


➤ A prism has 2 bases that are the same.
A prism has some rectangular faces.

This prism has 12 vertices, 18 edges, and 8 faces:
- 2 hexagons
- 6 rectangles

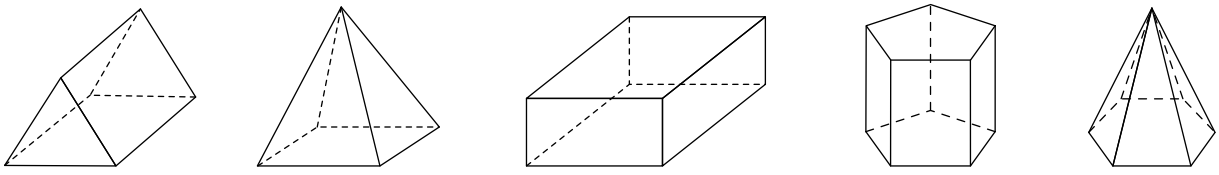


This prism has 8 vertices, 12 edges, and 6 faces:
- 6 rectangles



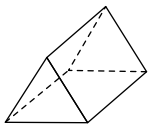
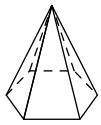
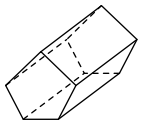
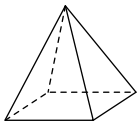
Try These

1. Colour the pyramids blue. Colour the prisms red.



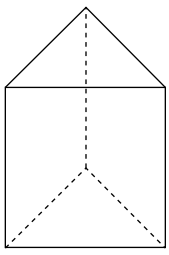
Practice

1. Complete the chart.

Object	Pyramid or Prism?	Number of Faces	Number of Edges	Number of Vertices
				
				
				
				

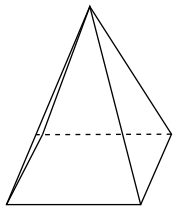
2. Name each object and the shapes of its faces.
Tell how many of each shape there are.

a)



_____

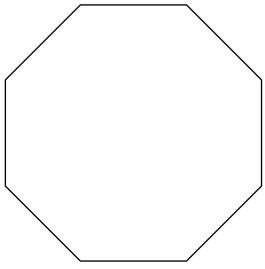
b)



_____

Stretch Your Thinking

Draw the other base and the faces of the prism with this base:



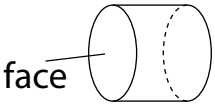
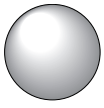
UNIT 6

STUDENT BOOK 5 LESSON

Describing Cylinders, Cones, and Spheres

At Home At School

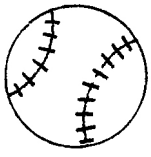
Quick Review

Object	Number of Vertices	Number of Edges	Number of Faces
 Cone	1	1	1
 Cylinder	0	2	2
 Sphere	0	0	0

Try These

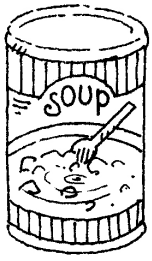
1. Tell if each object looks like a cone, a cylinder, or a sphere.

a)



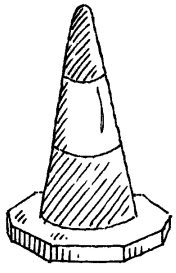
_____

b)



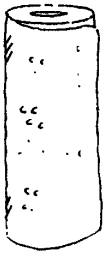
_____

c)



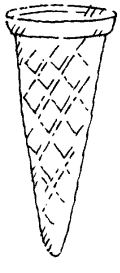
_____

d)



_____

e)



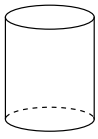
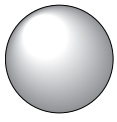
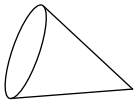
_____

f)

_____

Practice

1. Look at home for an item that looks like each object.
Draw a picture of each item and write its name.
Tell how many vertices, edges, and faces the item has.

	Item	Number of Vertices	Number of Edges	Number of Faces
 cylinder				
 sphere				
 cone				

2. Pietro says that a cylinder has more faces than edges. Is he correct?

Explain. _____

_____

Stretch Your Thinking

Think about cylinders, cones, and spheres.
Sketch 3 objects that together have:

a) 5 faces and 5 edges

b) 1 face and 1 edge

UNIT 6

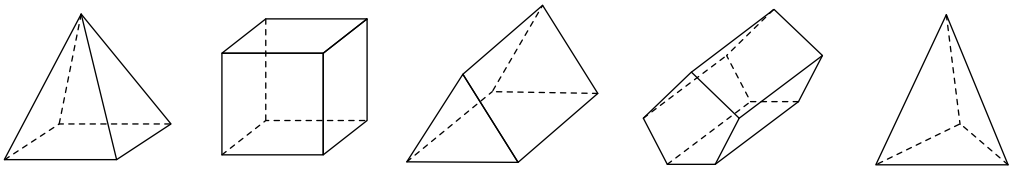
STUDENT BOOK 6 LESSON

Sorting Objects

Quick Review

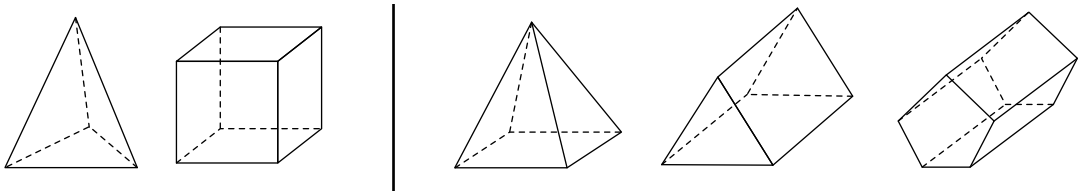
At Home At School

Here are some objects you know.



Pyramid | Cube | Prism | Prism | Pyramid

One way to sort these objects is shown below.

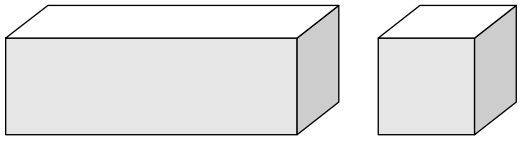


The sorting rule is:

Objects with an even number of faces and objects with an odd number of faces

Try These

1. How are these 2 objects the same? Different?



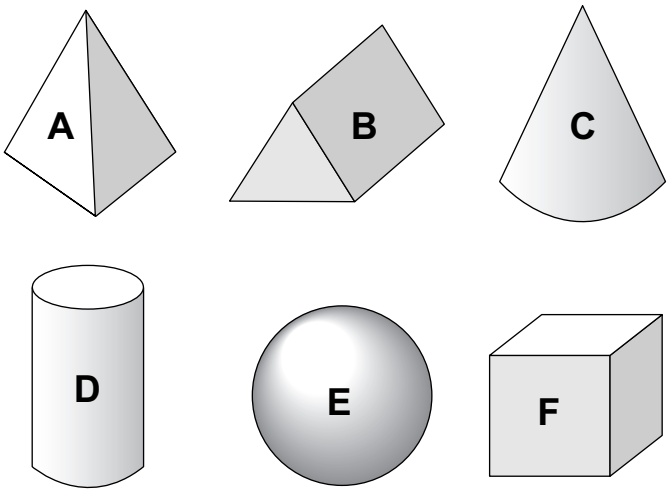
_____

_____

_____

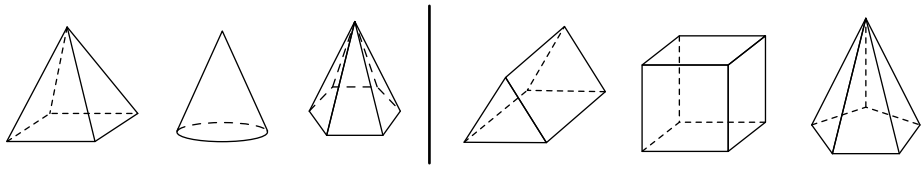
Practice

1. Sort these objects. Use the letters to record your sorting in the table.



More than 5 Edges	Fewer than 5 Edges

2. Beth sorted these objects. Write the sorting rule.



_____

_____

3. Write the names of one or more objects that could answer each riddle.

a) I have 12 edges. _____

b) I have 6 vertices. _____

c) I have 6 identical faces. _____

Stretch Your Thinking

Find 2 different boxes or containers.
Tell how they are different and how they are the same.

_____

_____

_____

UNIT 6

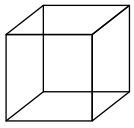
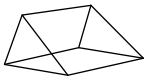
STUDENT BOOK 7 LESSON

Constructing Skeletons

Quick Review

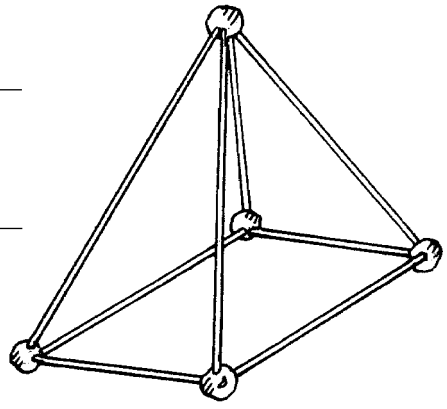
At Home At School

A **skeleton** is a model of an object showing only the edges and vertices. You describe a skeleton by its numbers of vertices and edges.

Skeleton	Number of Vertices	Number of Edges
Cube 	8	12
Prism 	6	9

Try These

1. This skeleton is made of straws and balls of modelling clay.



a) How many straws does the skeleton have? _____

b) How many balls of clay does the skeleton have? _____

c) Which object is the skeleton a model of? _____

2. How many straws and balls of clay would you need to build a cube?

straws _____ balls of clay _____

Practice

1. Use straws or toothpicks and balls of clay.
Make skeletons of 2 prisms and 2 pyramids.
At least 2 skeletons should have some triangular faces.
Sketch the skeletons in the boxes below.

2. Make each skeleton. How many straws and balls of clay did you need?

Skeleton	Straws	Balls of Clay
a cube		
a pyramid with a base that is a square		
a prism with bases that are pentagons		
a pyramid with a base that is a rectangle		
a prism with bases that are hexagons		

Stretch Your Thinking

Suppose you built a pyramid with a base that is an octagon.

a) How many straws would you need? _____

b) How many balls of clay would you need? _____

c) How many straws would you need if you used quarter straws for the edges of the base and whole straws for the other edges? _____

UNIT 7

STUDENT BOOK 1 LESSON

Collecting and Organizing Data

Quick Review

At Home At School

Data are facts or information.
You collect data to learn about people and things.

➤ To collect data, begin with these questions:

- WHAT do you want to know?
- WHAT question will you ask?
- WHOM will you ask?
- HOW will you show what you find out?

➤ You can record data in **tally charts** and **lists**.

Favourite Pets	
Hamster	𝍸 |
Dog	𝍸 𝍸 𝍸 ||
Cat	𝍸 ||
Other	||||

Cubes We Picked Up	
Green	7
Red	9
Yellow	12
Blue	4

Try These

Marsella collected these data.

Character	Tally	Number of Children
Pinocchio	𝍸 ||	7
Goldilocks	|||	3
Cinderella	𝍸	5
Snow White	𝍸 𝍸 |	11
Other	𝍸 ||	7

1. What question do you think she asked?

_____

_____

2. How many people did she ask?

_____

Practice

Some children were asked how many times they have been on a train.

Times on a Train	Number of Students
0	𝍸 𝍸 ||
1	||||
2	𝍸 ||
3	𝍸 𝍸
More than 3	||

1. How many children have never been on a train? _____

2. How many children were asked the question? _____

3. Carlos asked his classmates this question: Are you right-handed or left-handed? He organized the data in a list.

Left-Handed	Right-Handed
Ethel	Maria
Dan	Lucia
Igor	Bobby
Salina	Clarke
	Fred
	Sylvester
	Andy
	Helen

a) How many children are left-handed?

_____

b) How many more children are right-handed than left-handed?

_____

c) Write a question about Carlos' list.

_____

d) Answer your question.

_____

Stretch Your Thinking

Roll a number cube 50 times. Keep a tally of the number that comes up on each roll.

What did you find out?

_____

_____

Number	Tally
1	
2	
3	
4	
5	
6	

UNIT 7

STUDENT BOOK 2 LESSON

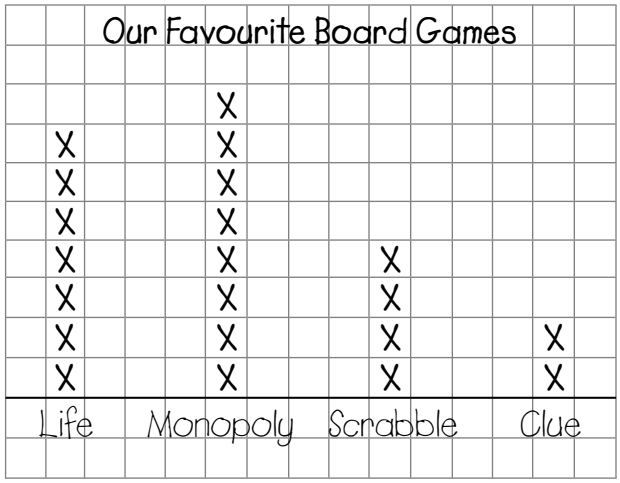
Line Plots

Quick Review

At Home At School

The children in Mr. Matsuo's class voted for their favourite board game. Sadie used these steps to make a **line plot** of the data.

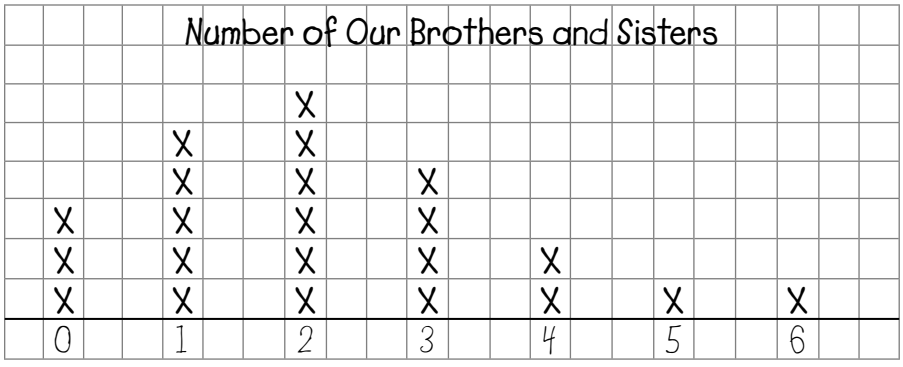
- Draw a line on grid paper. Write the names of the board games below the line.
- Mark an X to show each vote.
- Give the line plot a title.



The line plot shows that:
- 8 children chose *Monopoly*
- 3 more children chose *Life* than *Scrabble*

Try These

1. Bertram made this line plot to show the numbers of brothers and sisters his classmates have.



a) How many children have 3 brothers and sisters? _____

b) What is the most number of brothers and sisters for any child? _____

c) How many more children have 2 brothers and sisters than 4? _____

Practice

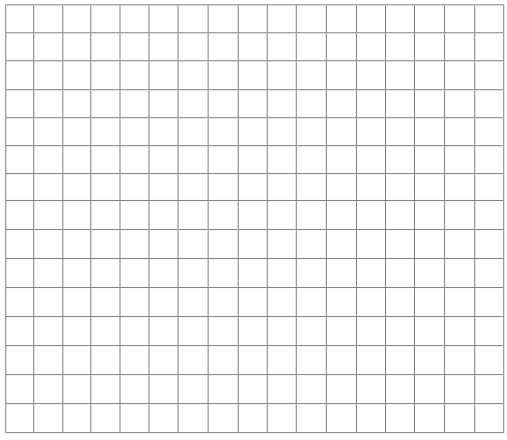
1. Ask some classmates:
Where would you like to go for holidays?

the beach _____

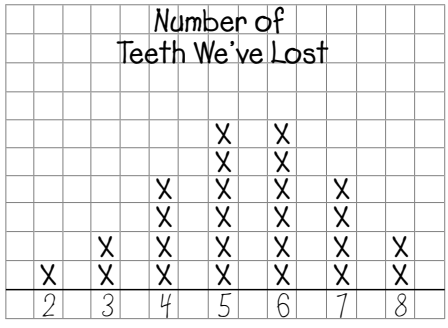
the mountains _____

a theme park _____

Collect and organize the data in a line plot.



2. Roberto made this line plot to show the number of teeth his classmates have lost.



a) What is the most number of teeth lost? _____

The least number? _____

b) How many more children lost 6 teeth than 4 teeth? _____

c) What else do you know from the line plot?

_____

_____

Stretch Your Thinking

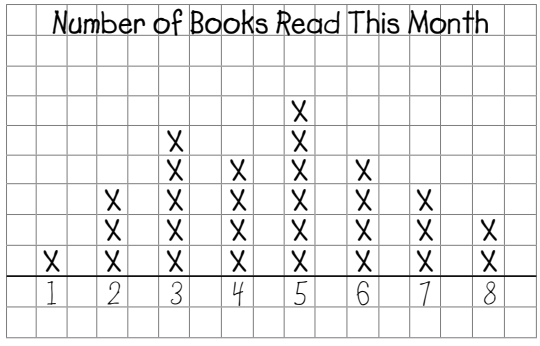
Look at the line plot.
How many children are in the class? _____
Write 2 things you know from the line plot.

_____

_____

_____

_____



UNIT 7

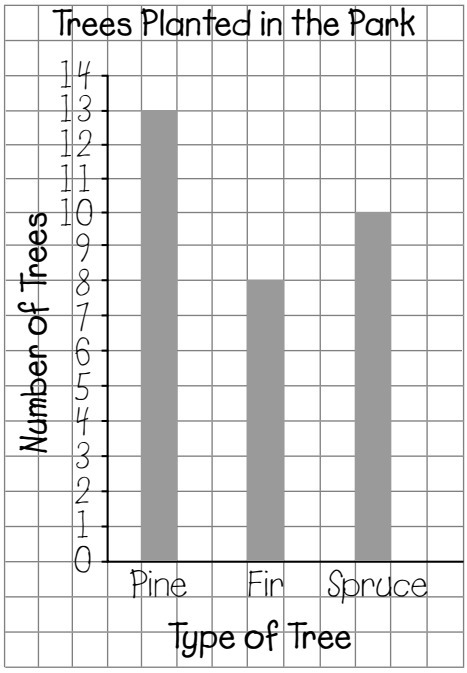
STUDENT BOOK 3 LESSON

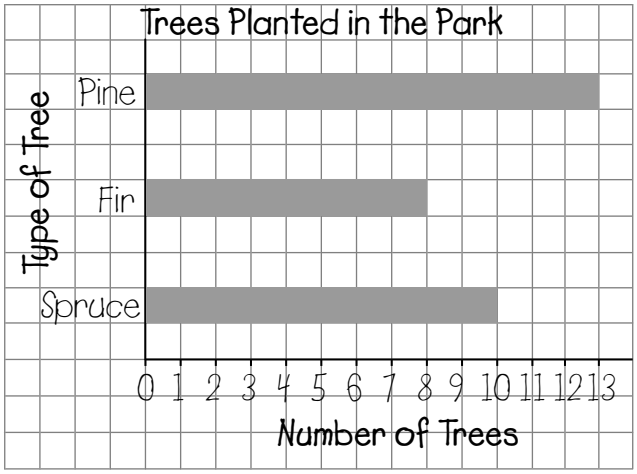
Reading Bar Graphs

Quick Review

At Home At School

These 2 graphs show the same data.





The **title** tells what the graph shows.

The labels on the **axes** tell about the data.

The numbers on the **axis** labelled "Number of Trees" show the **scale**.
The scale is: 1 square represents 1 tree.

Try These

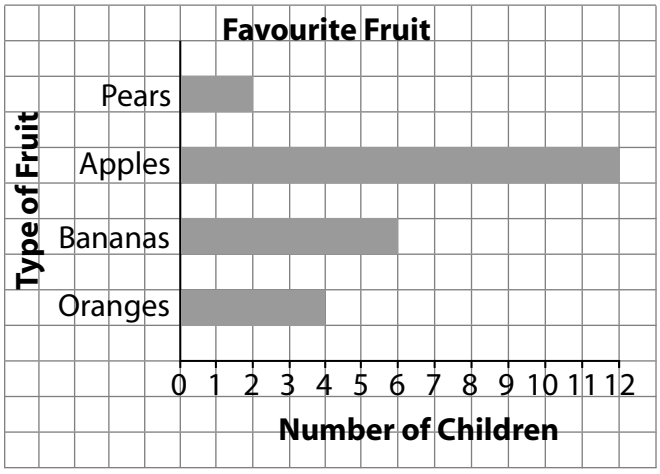
1. Look at the graphs above.

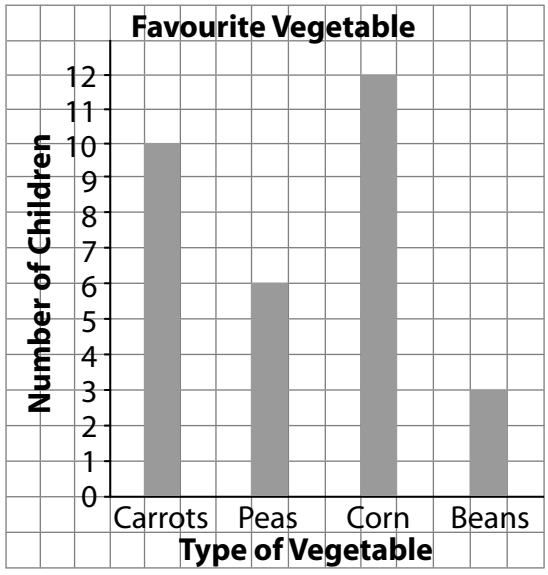
a) How many more pine trees than fir trees were planted? _____

b) How many trees were planted altogether? _____

Practice

Some children were asked to name their favourite fruit.
Other children were asked to name their favourite vegetable.





1. How many children like bananas? _____

2. How many more children like apples than oranges? _____

3. List the fruits from least popular to most popular.

_____

4. How many children like beans? _____

5. List the vegetables from most popular to least popular.

_____

6. How many children were asked to name

a) their favourite fruit? _____ **b)** their favourite vegetable? _____

Stretch Your Thinking

Use the bar graphs above to answer these questions.

a) Which fruit was named by twice as many children as bananas? _____

b) Which vegetable was named by half as many children as corn? _____

UNIT 7

STUDENT BOOK 4 LESSON

Drawing Bar Graphs

Quick Review

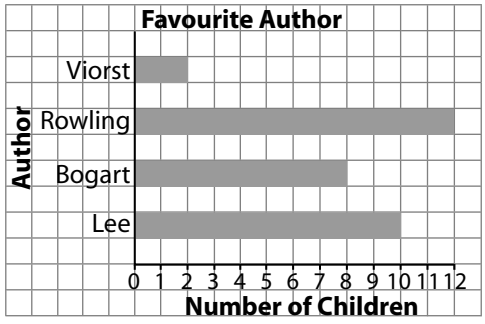
At Home At School

To draw a bar graph of the data in the chart:

- Draw 2 axes.
- Write the title.
- Label 1 axis "Author." Write the authors on this axis.
- Label the other axis "Number of Children." Write the numbers along this axis. Colour 1 square next to an author for each child who chose her or him.

Favourite Author

Author	Tally	Number of Children
Judith Viorst	||	2
J. K. Rowling	𝍸 𝍸 ||	12
Jo Ellen Bogart	𝍸 |||	8
Dennis Lee	𝍸 𝍸	10



The graph shows J. K. Rowling is the favourite author. Her bar has the most squares.

Try These

The Grade 3 children in Mr. Shankar's class chose their favourite winter activity.

1. Finish the bar graph.
2. Write 3 things you know from the graph.

_____

_____

_____

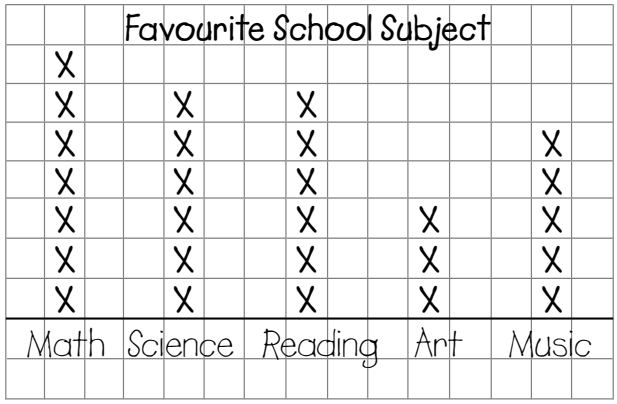
_____

Favourite Winter Activity

Activity	Tally	Number of Children
Skating	𝍸 |	6
Skiing	𝍸	5
Sledding	||||	4

Practice

The children in Becky's class chose their favourite school subject. They showed the data in a line plot.



1. Draw a bar graph to show the data.

2. Write 3 things you know from the graph.

_____

_____

Stretch Your Thinking

Use the data about favourite winter activities in *Try These*. Draw a different bar graph.

UNIT 7

STUDENT BOOK 5 LESSON

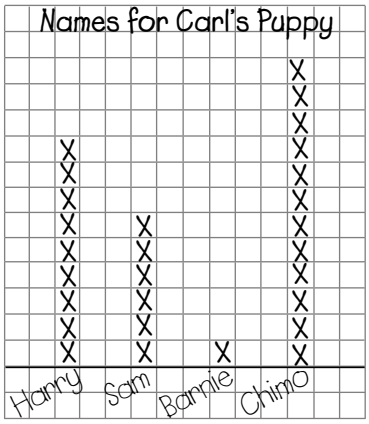
Using Graphs to Solve Problems

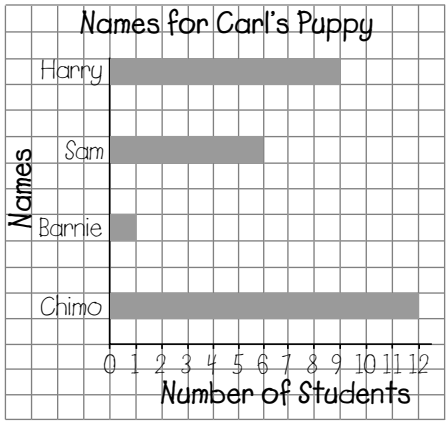
Quick Review

At Home At School

Carl wanted to solve the problem about what to name his puppy. He asked his classmates for their ideas.

➤ Carl made a line plot to collect data from his classmates. Then he drew a bar graph.





➤ Carl found out that the most popular name was Chimo, so that is what he named his puppy.

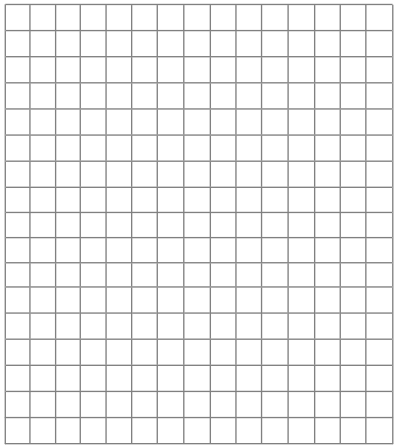
Try These

1. a) Organize Carl's data in this tally chart.

Votes for the Puppy's Name

Names	Tally	Number of Votes

b) Draw a different bar graph.



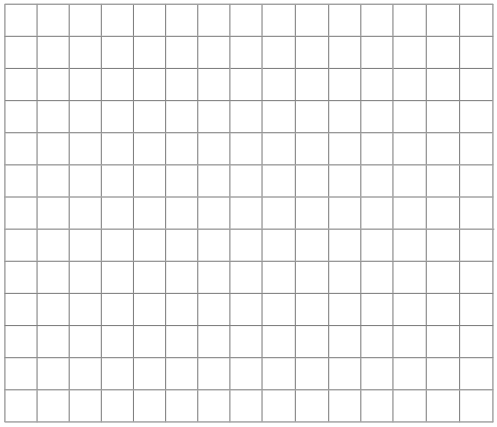
Practice

1. Solve this problem: Which pet should we get for the classroom?

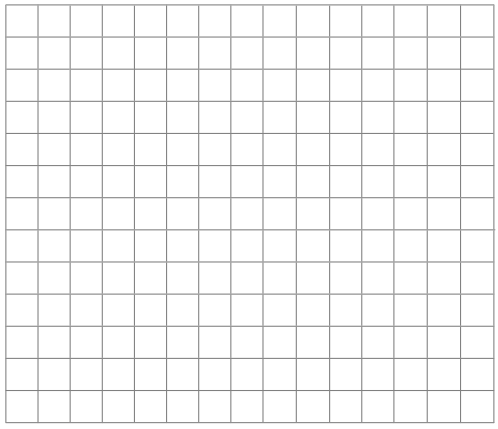
a) List the pets you could get.

_____

b) Collect and organize the data in a line plot.



c) Draw a bar graph to show your data.



d) List 2 things you found out.

_____

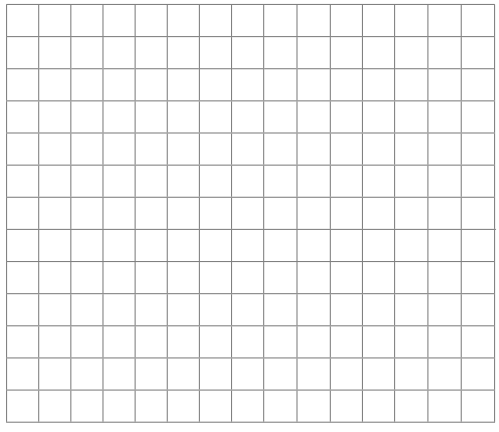
_____

Stretch Your Thinking

Choose a topic for a problem. Decide on a question to ask.
Collect and organize the data. Draw a bar graph.

Question: _____

_____



What is your solution to the problem? _____

_____

UNIT 8

STUDENT BOOK 1 LESSON

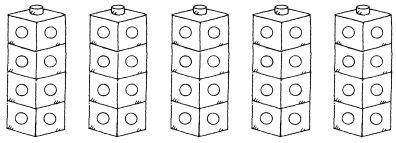
Investigating Equal Groups

Quick Review

At Home At School

Equal groups have the same number of things in each group.

Here are 5 towers of Snap Cubes.
There are 4 cubes in each tower.



Skip count to find how many cubes.
There are 20 cubes in all.
We write 5 groups of 4 as a **multiplication sentence**.

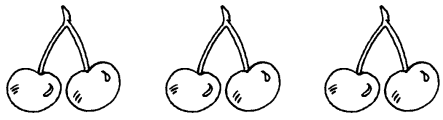
$$5 \times 4 = 20$$

- 5: Number of groups
- 4: Number of cubes in each group
- 20: Total number of cubes

We say: 5 **times** 4 equals 20.

Try These

Write a multiplication sentence for each picture.

1. 

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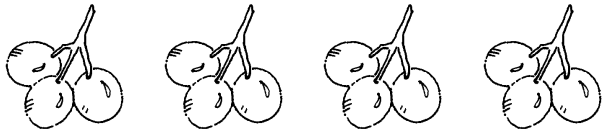
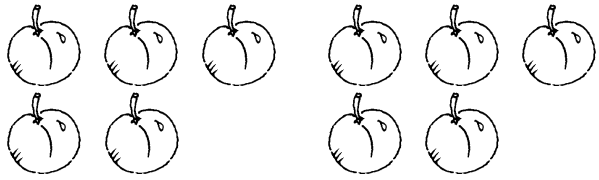
2. 

_____

3. 

_____

Practice

1. Find each product.

a) $1 \times 1 =$ _____ **b)** $2 \times 4 =$ _____ **c)** $1 \times 3 =$ _____

d) $4 \times 3 =$ _____ **e)** $2 \times 5 =$ _____ **f)** $5 \times 1 =$ _____

2. Multiply.

a) $2 \times 3 =$ _____ **b)** $3 \times 3 =$ _____ **c)** $4 \times 4 =$ _____

d) $5 \times 5 =$ _____ **e)** $2 \times 1 =$ _____ **f)** $2 \times 2 =$ _____

3. Draw a picture for each multiplication sentence.

a) $3 \times 4 = 12$	**b)** $2 \times 5 = 10$	**c)** $4 \times 5 = 20$

Stretch Your Thinking

Golf balls come in tubes of 3.
Each box has 4 tubes.

Draw a picture and write a multiplication sentence to find how many golf balls in a box.

_____

UNIT 8

STUDENT BOOK 2 LESSON

Relating Multiplication and Repeated Addition

Quick Review

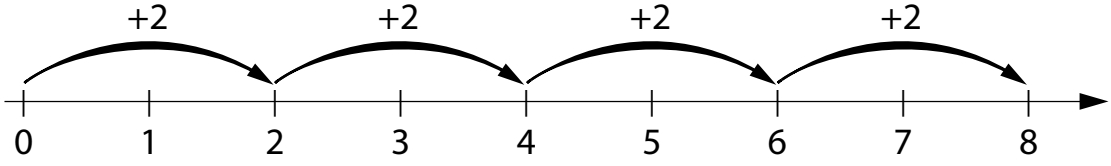
At Home At School

You can use **repeated addition** to think about multiplication.

$2 + 2 + 2 + 2 = 8$

$4 \times 2 = 8$

You can use a **number line** to show multiplication as repeated addition.

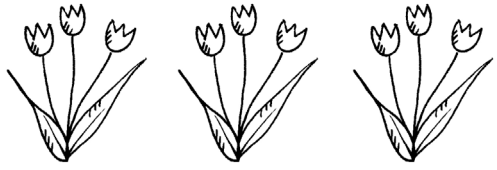


Add 2 each time.
4 times 2 equals 8.

Try These

Write an addition sentence and a multiplication sentence for each picture.

1.



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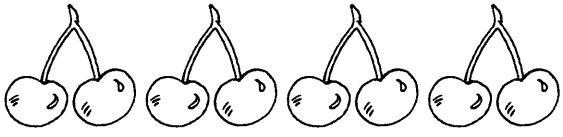
2.



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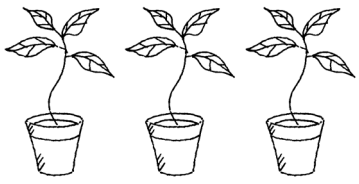
3.



_____

Practice

1. Write an addition sentence for each multiplication sentence.

a) $3 \times 2 = 6$ _____ **b)** $4 \times 5 = 20$ _____

c) $2 \times 4 = 8$ _____ **d)** $3 \times 1 = 3$ _____

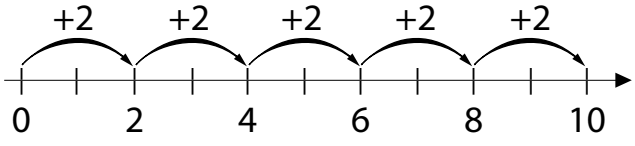
2. Write a multiplication sentence for each addition sentence.

a) $1 + 1 + 1 + 1 + 1 = 5$ _____ **b)** $4 + 4 + 4 = 12$ _____

c) $3 + 3 + 3 + 3 = 12$ _____ **d)** $3 + 3 = 6$ _____

3. Write an addition sentence and a multiplication sentence for each number line.

a)



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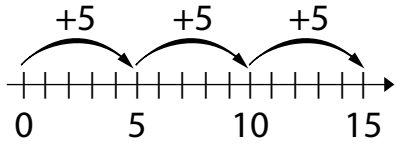
_____

b)



_____

_____

4. Draw a picture for each multiplication sentence.
Then write an addition sentence.

a) $4 \times 4 = 16$ **b)** $5 \times 3 = 15$

_____ _____

Stretch Your Thinking

Write an addition sentence and a multiplication sentence to find the number of school days in 5 weeks.

_____

UNIT 8

STUDENT BOOK 3 LESSON

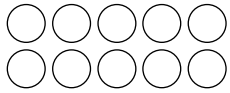
Using Arrays to Multiply

At Home At School

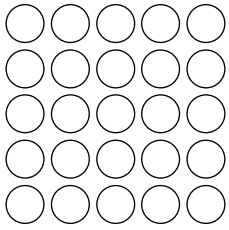
Quick Review

An **array** shows objects arranged in equal rows.

➤ This is a 2-by-5 array.
There are 2 rows of 5 counters.
$2 \times 5 = 10$

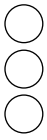


➤ This is a 5-by-5 array.
There are 5 rows of 5 counters.
$5 \times 5 = 25$



➤ This is a 1-by-4 array.
There is 1 row of 4 counters.
$1 \times 4 = 4$

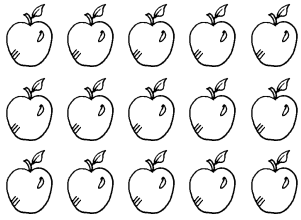
➤ This is a 3-by-1 array.
There are 3 rows of 1 counter.
$3 \times 1 = 3$



Try These

Write a multiplication sentence for each array.

1.



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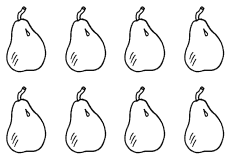
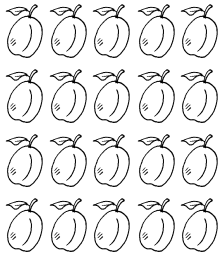
2.



_____

3.



_____

Practice

1. Draw an array to find each product.

a) $4 \times 4 =$ _____	**b)** $3 \times 4 =$ _____	**c)** $5 \times 2 =$ _____
d) $3 \times 5 =$ _____	**e)** $2 \times 5 =$ _____	**f)** $5 \times 3 =$ _____

2. Use counters. Make an array to find each product.

a) $1 \times 2 =$ _____ **b)** $4 \times 1 =$ _____ **c)** $2 \times 3 =$ _____

d) $3 \times 3 =$ _____ **e)** $5 \times 4 =$ _____ **f)** $5 \times 5 =$ _____

3. There are 4 rows of marchers in the band.
There are 5 marchers in each row.
How many marchers are there in all? _____

Stretch Your Thinking

Find different ways of arranging 24 counters in equal rows.
Draw a picture to show each way.

UNIT 8

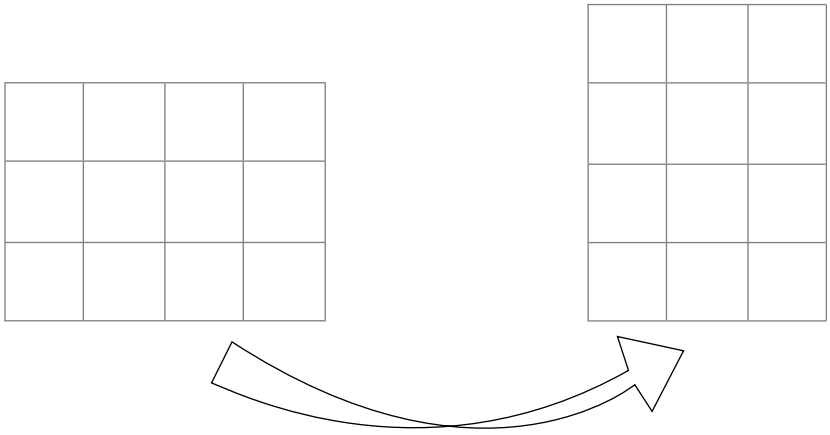
STUDENT BOOK 4 LESSON

Relating Multiplication Sentences

Quick Review

At Home At School

When you multiply 2 numbers, you can switch the order of the numbers without changing the product.

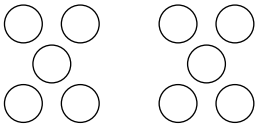


3 rows of 4
$3 \times 4 = 12$

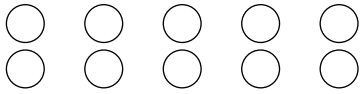
Turn the array on its side.

4 rows of 3
$4 \times 3 = 12$

We can show the same idea using equal groups.



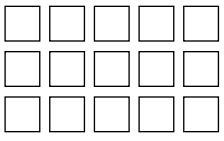
2 groups of 5
$2 \times 5 = 10$



5 groups of 2
$5 \times 2 = 10$

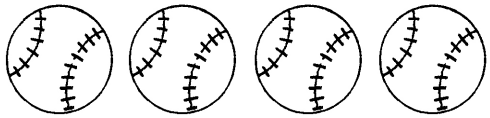
Try These

1. Write 2 multiplication sentences for each array.

a) 

_____

_____

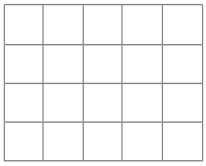
b) 

_____

_____

Practice

1. Write 2 multiplication sentences and 2 repeated addition sentences for each array, when you can.

a) 

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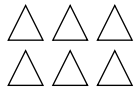
b) 

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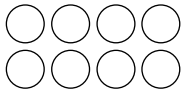
c) 

_____

_____

d) 

_____

_____

2. Draw an array for each multiplication sentence.
Then write another multiplication sentence for each array.

a) $2 \times 1 = 2$

_____

b) $2 \times 5 = 10$

_____

Stretch Your Thinking

Draw 20 cookies in an array. Write 2 multiplication sentences for the array.

_____

UNIT 8

STUDENT BOOK 5 LESSON

Division as Grouping

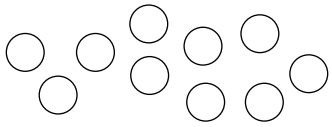
Quick Review

At Home At School

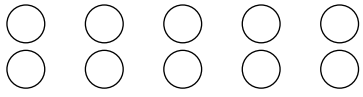
Division can be used to find how many equal groups there are when you know the size of the groups.

How many equal groups of 2 are there in 10?

➤ Start with 10 counters.



➤ Divide the 10 counters into groups of 2.
Count the number of groups.



➤ Write the **division sentence**.

10 ÷ 2 = 5

We say: 10 divided by 2 equals 5.

Number of counters — Number in each group — Number of groups

Try These

1. Use counters. Find the number of groups.
Write a division sentence.

a) Divide 12 counters into groups of 3. _____

b) Divide 8 counters into groups of 1. _____

c) Divide 10 counters into groups of 5. _____

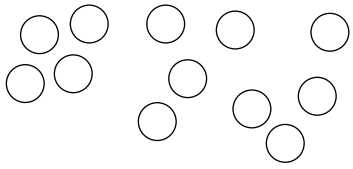
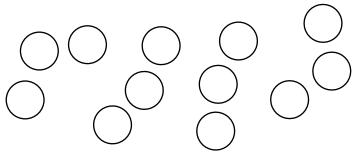
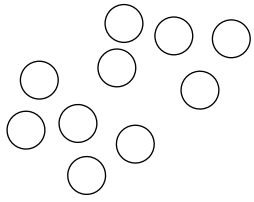
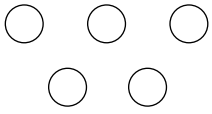
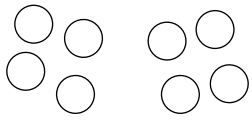
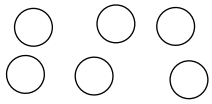
2. Use counters. Make equal groups to divide.

a) 15 ÷ 5 = _____ **b)** 12 ÷ 4 = _____ **c)** 8 ÷ 2 = _____

d) 2 ÷ 1 = _____ **e)** 6 ÷ 2 = _____ **f)** 4 ÷ 4 = _____

Practice

1. Find the number of groups. Then write a division sentence.

a) Make groups of 4. 	**b)** Make groups of 3. 	**c)** Make groups of 5. 
d) Make groups of 1. 	**e)** Make groups of 4. 	**f)** Make groups of 2. 

2. Write a division sentence to solve each problem.

a) Ira has 12 plums. He gives 4 plums to each of his friends.

How many people get plums? _____

b) Suri has 15 photos. She puts 5 photos on each page.

How many pages does Suri use? _____

c) Sahib baked 10 tarts. He put 2 tarts into each bag.

How many bags did Sahib use? _____

Stretch Your Thinking

The answer is $20 \div 4 = 5$.
What might the problem be?

_____

_____

UNIT 8

STUDENT BOOK 6 LESSON

Division as Sharing

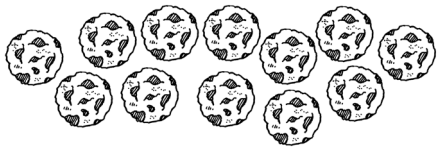
Quick Review

At Home At School

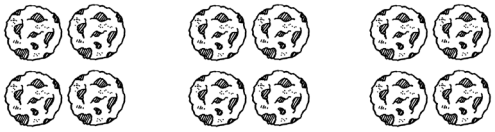
Division can be used to find how many are in each group when you know the number of groups.

12 cookies are shared equally among 3 friends.
How many cookies does each person get?

➤ Start with 12 cookies.



➤ Divide the 12 cookies into 3 groups.
Count the number of cookies in each group.



➤ Write the division sentence.

12 ÷ 3 = 4

We say: 12 divided by 3 equals 4.

Number of cookies	Number of groups	Number of cookies in each group
12	3	4

Try These

1. Use counters. Find the number in each group.
Write a division sentence.

a) Divide 20 counters into 4 groups. _____

b) Divide 16 counters into 4 groups. _____

c) Divide 3 counters into 3 groups. _____

d) Divide 12 counters into 4 groups. _____

Practice

1. Find the number of things in each group.

a) $8 \div 4 =$ _____ **b)** $20 \div 5 =$ _____ **c)** $2 \div 2 =$ _____

d) $10 \div 2 =$ _____ **e)** $8 \div 2 =$ _____ **f)** $3 \div 1 =$ _____

g) $10 \div 5 =$ _____ **h)** $4 \div 4 =$ _____ **i)** $15 \div 3 =$ _____

2. Write a division sentence to solve each problem.

a) There are 20 people on 4 equal teams. How many people are on each team? _____

b) There are 16 muffins in 4 equal-sized tins. How many muffins are in each tin? _____

c) There are 25 chairs in 5 equal rows. How many chairs are in each row?

_____

d) There are 4 buttons in 2 equal rows. How many buttons are in each row?

_____

3. Write an equal sharing problem for $6 \div 2 = 3$.
Show how to solve the problem using a picture.

_____

_____

_____

Stretch Your Thinking

There are 12 members in the Boy Scout troop.
They will march in the parade in equal rows.
How many Boy Scouts could be in each row?

_____

_____

UNIT 8

STUDENT BOOK 7 LESSON

Relating Division and Repeated Subtraction

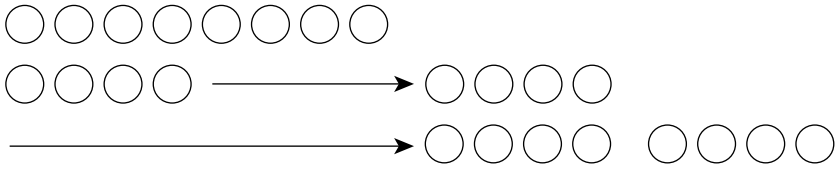
Quick Review

At Home At School

You can use repeated subtraction to find 8 ÷ 4.

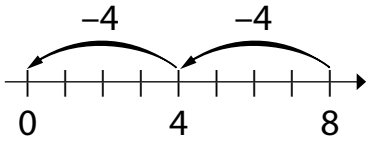
Start with 8 counters.

➤ Count how many groups of 4 you subtract until no counters remain.



8 subtract 4 is 4, subtract 4 more is 0.
That's 2 groups.
So, 8 ÷ 4 = 2

➤ You can use a number line to show how division is like repeated subtraction.



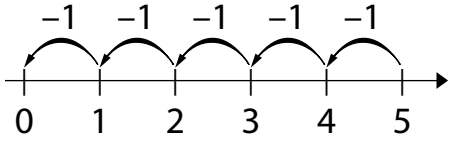
8 – 4 – 4 = 0
So, 8 ÷ 4 = 2

Try These

1. Write a division sentence for each repeated subtraction sentence.

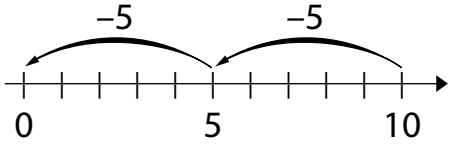
a) 5 – 1 – 1 – 1 – 1 – 1 = 0

_____



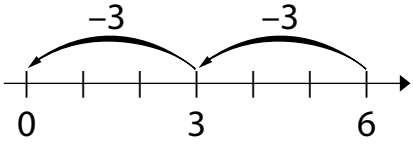
b) 10 – 5 – 5 = 0

_____



c) 6 – 3 – 3 = 0

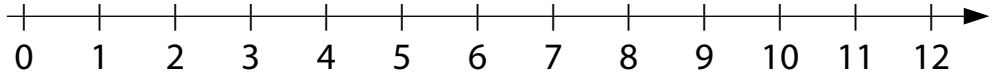
_____



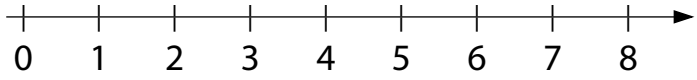
Practice

1. Show each division sentence as repeated subtraction on the number line.

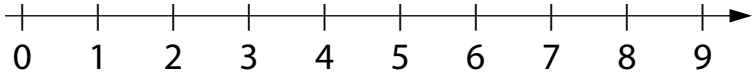
a) $12 \div 3 = 4$



b) $8 \div 2 = 4$



c) $9 \div 3 = 3$



2. Write each division sentence as repeated subtraction.

a) $15 \div 5 = 3$ _____ **b)** $4 \div 1 = 4$ _____

c) $20 \div 4 = 5$ _____ **d)** $12 \div 4 = 3$ _____

e) $25 \div 5 = 5$ _____ **f)** $5 \div 5 = 1$ _____

3. Write a division sentence to solve this problem:

Karl has 20 gerbils. He puts 4 gerbils into each cage.
How many cages does Karl use?

_____

Stretch Your Thinking

Find as many ways to put 20 counters into equal groups as you can. Write a repeated subtraction sentence and a division sentence for each way you find.

_____

_____

_____

_____

UNIT 8

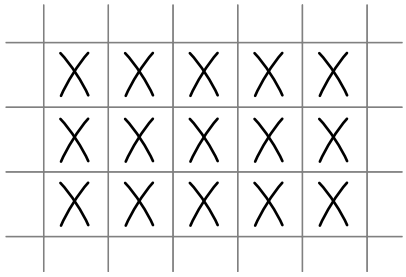
STUDENT BOOK 8 LESSON

Relating Multiplication and Division Using Arrays

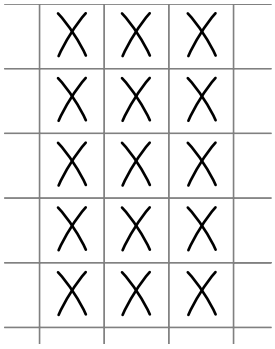
Quick Review

At Home At School

This array has 3 rows of 5.
The multiplication sentence is: $3 \times 5 = 15$
The division sentence is: $15 \div 3 = 5$



Turn the array to show 5 rows of 3.
The multiplication sentence is: $5 \times 3 = 15$
The division sentence is: $15 \div 5 = 3$



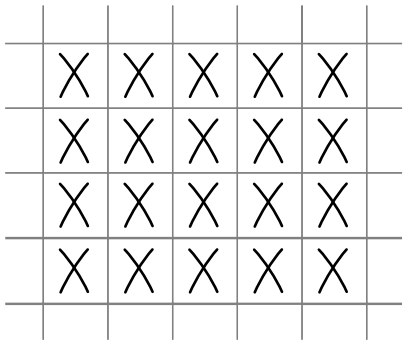
These four number sentences are **related sentences**.

$3 \times 5 = 15$
$5 \times 3 = 15$
$15 \div 3 = 5$
$15 \div 5 = 3$

Try These

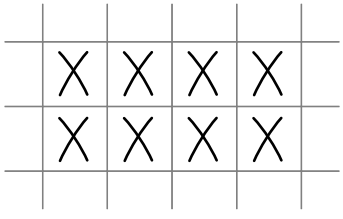
1. Write a multiplication sentence and a division sentence for each picture.

a)



_____

b)

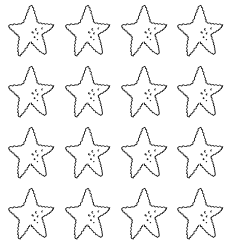


_____

Practice

1. Write a multiplication sentence and a division sentence for each picture.

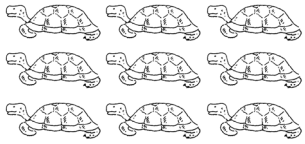
a)



_____

_____

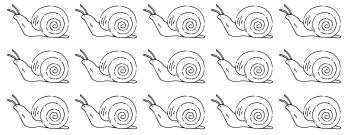
b)



_____

_____

c)



_____

_____

2. Write the related sentences for each set of numbers.

a) 1, 5, 5 _____

b) 2, 3, 6 _____

c) 3, 5, 15 _____

d) 4, 4, 16 _____

e) 5, 2, 10 _____

3. Divide. Use multiplication facts to help you.

a) 12 ÷ 4 = _____ **b)** 10 ÷ 5 = _____ **c)** 15 ÷ 3 = _____

d) 10 ÷ 2 = _____ **e)** 16 ÷ 4 = _____ **f)** 4 ÷ 4 = _____

Stretch Your Thinking

Berta has a collection of antique dolls.
If Berta puts her dolls into groups of 3 or 4, she has 2 dolls left over.
How many dolls might Berta have?

_____

UNIT 8

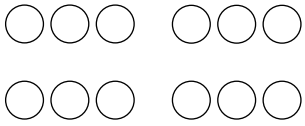
STUDENT BOOK 9 LESSON

Relating Multiplication and Division Using Groups

Quick Review

At Home At School

Multiplication and division are related.



Multiplication: $4 \times 3 = 12$
Division as grouping: $12 \div 3 = 4$

Multiplication: $3 \times 4 = 12$
Division as sharing: $12 \div 4 = 3$

Multiplication can help you think about division.
What is $16 \div 4$?

$4 \times \square = 16$

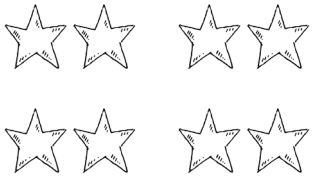
$4 \times 4 = 16$

So, $16 \div 4 = 4$

Try These

1. Write a multiplication sentence and a division sentence for each picture.

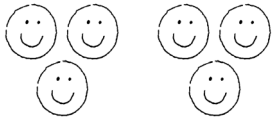
a)



_____

_____

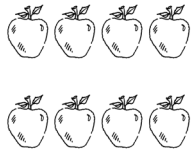
b)



_____

_____

c)



_____

_____

2. Write the related number sentences for each set of numbers.

a) 2, 5, 10 _____

b) 5, 3, 15 _____

Practice

1. Multiply or divide to solve the riddle.
Match each letter to its answer. Some letters are not used.

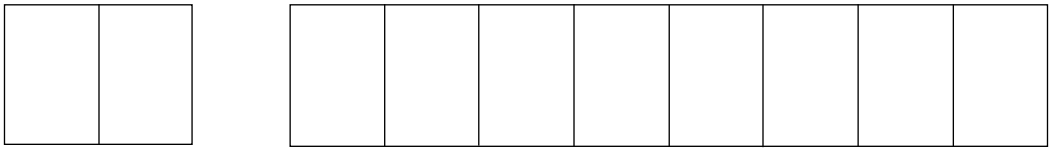
Riddle: What goes up a chimney down, but can't go down a chimney up?

$3 \times 3 =$ _____ (C) $1 \times 4 =$ _____ (B) $5 \times 2 =$ _____ (Q)

$3 \times 5 =$ _____ (R) $20 \div 4 =$ _____ (A) $9 \div 3 =$ _____ (M)

$4 \times 2 =$ _____ (Z) $3 \times 4 =$ _____ (P) $5 \times 4 =$ _____ (E)

$4 \div 2 =$ _____ (U) $4 \times 4 =$ _____ (L) $1 \div 1 =$ _____ (N)



5 1 2 3 4 15 20 16 16 5

2. Write the related number sentences for each set of numbers.

a) 5, 5, 25 _____

b) 2, 2, 4 _____

c) 3, 3, 1 _____

d) 4, 3, 12 _____

3. Pono bought some packages of tennis balls.
Each package holds 3 balls. There are 15 balls altogether.
How many packages did Pono buy?

_____

Stretch Your Thinking

Write as many division sentences as you can that have an answer of 3.

_____

_____

Become a Bookworm

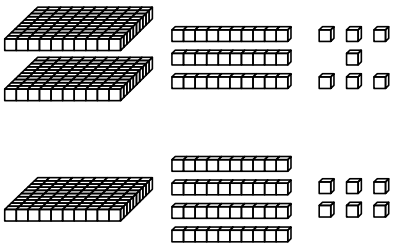
Find a book with lots of pages (a novel would be great) and open it to the last page. Read the number.

Now, put your finger in the book where you think it's about halfway. Estimate what page number you'll see, then open it to see how close you are.

Try estimating and opening at different pages (20, 50, …)!

Story Time

Write a story that includes these 2 numbers:



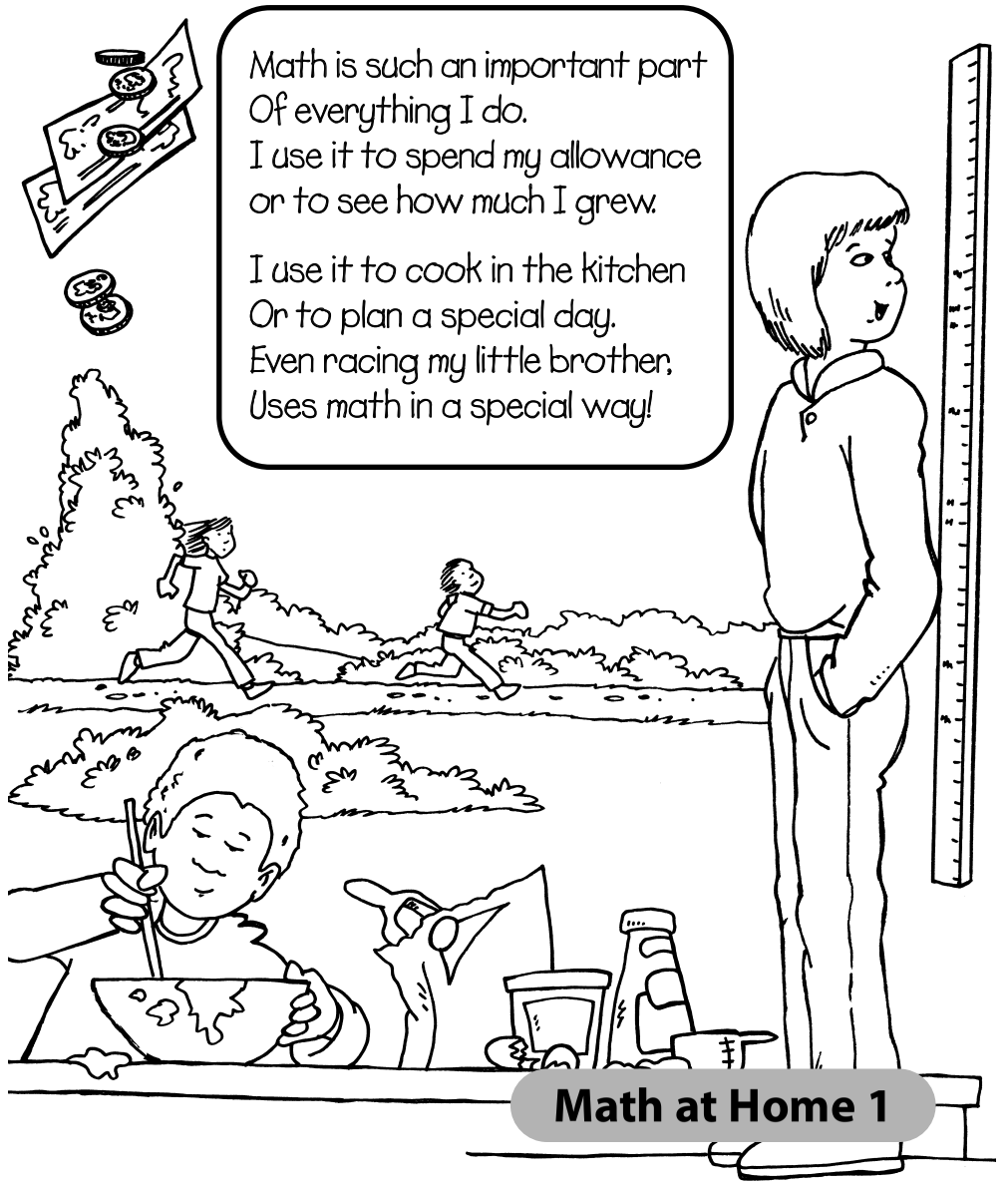
Sum It Up

What is the greatest number you can add to 431 to get a sum less than 700?

What is the least number you can add to 431 to get a sum greater than 700?

Fold

Math at Home



Make the Numbers

Use the numbers shown to make:

- the greatest possible number: 5 3 8
- the least possible number: 7 9 6
- a number in between: 6 4 8

Change the Pattern

Write 3 different patterns that start with 1, 3, . . .
Ask a friend to tell the pattern rule for each pattern.

a) 1, 3, ____, ____, ____, ____, ____, ____

b) 1, 3, ____, ____, ____, ____, ____, ____

c) 1, 3, ____, ____, ____, ____, ____, ____

Think About It!

Sam is counting coins. He says: "25, 50, 60, 70, 80, 90, 95, 96, 97."
What coins does he have?

Mike has 38 cents in 7 coins.
What coins could they be?

Spot the Pattern Mix-up

Can you find the mistake in this pattern?

A	B	B	C	C
C	A	B	B	C
C	C	A	B	B
C	C	C	A	B
B	C	C	A	C
B	B	C	C	C

Is there a quick way to spot the mix-up?

Make up your own and try to stump a friend!

Cruising Down the River

Here are the lengths of some Canadian rivers.

Back River	974 km
Red Deer River	724 km
La Grande Rivière	893 km
Albany River	982 km
Skeena River	579 km

List the rivers from longest to shortest.

Find the rivers on a map of Canada. Compare their lengths visually.

Be a Collector!

Work with some friends.

Decide on a small item to collect such as buttons, acorns, or bottle caps.

Collect as many as you can.

Each day, count the number brought to school. How many do you have in all?

Keep collecting until you have 1000 items.

Decide on a way to display your collection so the items are easy to count.

Greater Than or Less Than

Take a handful of counters and put them on the table. Use craft sticks or straws to make a greater than (>) or less than (<) sign beside the pile.

A partner takes another pile of counters to make the sign true.

Together, count the piles.
Was the sign pointing the right way?

Spend It!

Before you play:
Cut out pictures from several different flyers and give each item a price (each item must be less than $25). Record prices in dollars. Put them in a bag you can't see through.

On your turn:
At the top of a piece of paper, print $99.

Pull an item from the bag. Subtract the price from your $99. Throw the item back in the bag.

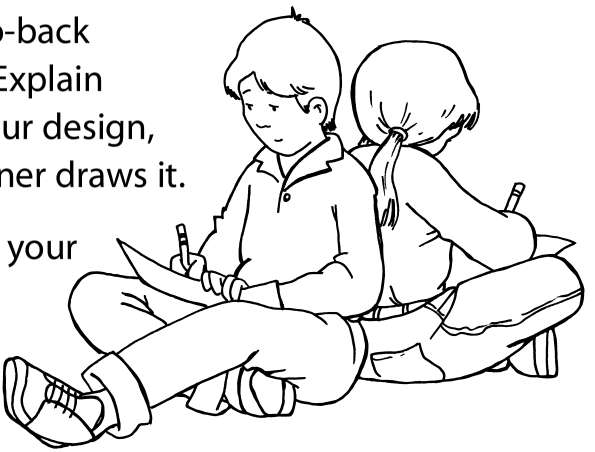
Take turns until only one person has money left. The last player with some cash wins!

Shape Designs

Without showing anyone, draw a design using both shapes and patterns.

Now, sit back-to-back with a partner. Explain how to draw your design, while your partner draws it.

All done? Show your masterpieces!



Hundred Chart for Secret Word

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

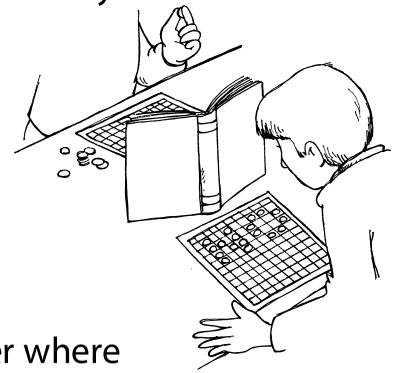
Secret Word

You'll need:

- 2 hundred charts (copy the one at the left)
- centimetre cubes
- a hard cover book for a barrier

To begin:

Players put their hundred charts in front of them. Then they place the barrier so they cannot see each other's hundred chart.



On your turn:

Spell a two-letter word on your hundred chart by covering numbers with centimetre cubes.

Now, explain to your partner where to put cubes in order to discover your secret word.

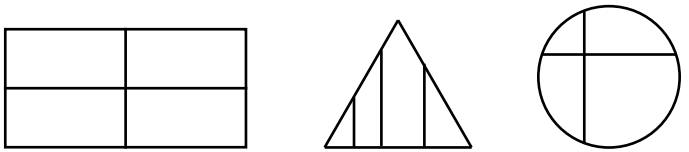
For each row of cubes, give a hint like: "Put a cube on the 12, then add 10 three times." Cover each number with a cube.

Another hint might be: "Begin at the 12, but this time add 11 three times."

Give pattern hints until the word is done. Take down the barrier to see if the secret word has been revealed!

Fourths? Or Not?

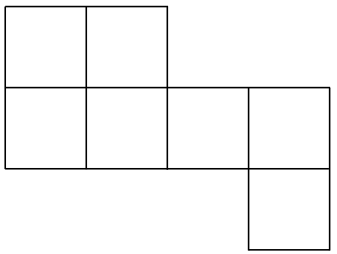
Michel divided these 3 shapes into fourths.



Andrea said there was a problem! What is it?

All the Way Around

If one side of a square is 1 unit, what's the perimeter of the shape below?



_____ units

Now, use the same number of squares to make a shape that has a greater perimeter. How about one that's less?

Fold

Math at Home

Sometimes I wonder what the world
Would be like without math.
Would we know how full to fill the tub
When it's time to take a bath?

Would we know how much paint we need
To paint my bedroom wall?
Would we know how far to throw
Fido's slimy, squishy ball?

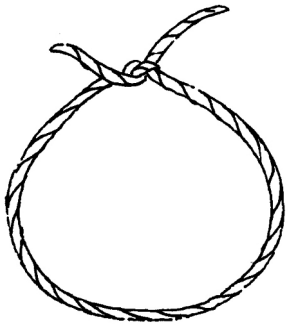
Things would sure be different,
When it's time to make a meal.
I guess we should be thankful,
That math is very REAL!

Math at Home 2

String Shapes

You will need string, scissors, a ruler, and a tape measure.

Cut 4 pieces of string, each about 50 cm long.

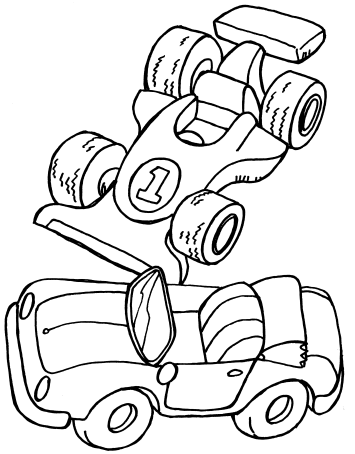


Make 4 string loops. Use the string loops to make a triangle, a quadrilateral, a pentagon, and a hexagon.

Make a chart like the one below. Record the data for each shape.

String Shapes			
Picture of the Shape	Number of Sides	Lengths of Sides	Perimeter

Turbo Challenge



Be the first to get your car all the way down the hall.

You'll need:

- 2 toy cars
- 2 counters
- a coin
- a ruler
- a metre stick or metre-long string
- cards numbered 1–10 placed in a bag

On your turn:

Toss the coin.
Heads = centimetre Tails = metre

If you toss heads, choose a number card. You'll move your car down the hall the same number of centimetres as shown on the card. If you toss tails, move your car ahead 1 m.

In either case, estimate where you will be after you move, and put a counter on that spot. Together, measure to see how close your estimate was.

Done measuring? Drive to your new spot.

Take turns until someone makes it to the end of the hall!

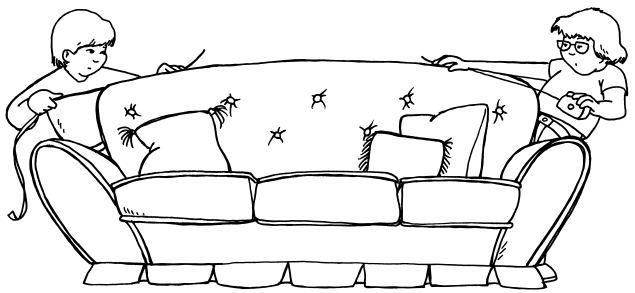
Kilograms at Home

Find foods at home that are labelled in kilograms.
Make a list of the items you find.
Include the mass of each item.

Kilograms at Home
potatoes – 5 kg
flour – 2.5 kg

Measure It

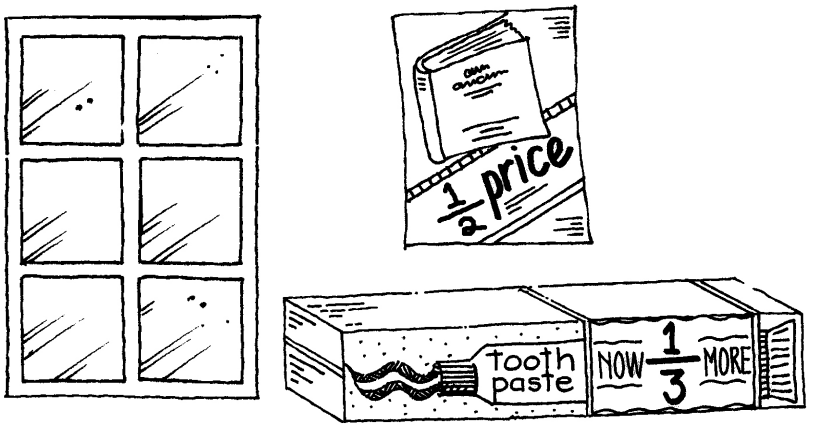
Jess said the couch was 215 cm long. Drew said it was actually 2 m 15 cm. Who's right?



Fraction Hunt

Look through old magazines, newspapers, and flyers.
Find examples of fractions. These can be fraction symbols or pictures of objects divided into equal parts.
Cut out the fractions. Glue them onto a large sheet of paper or cardboard to create a fraction collage.

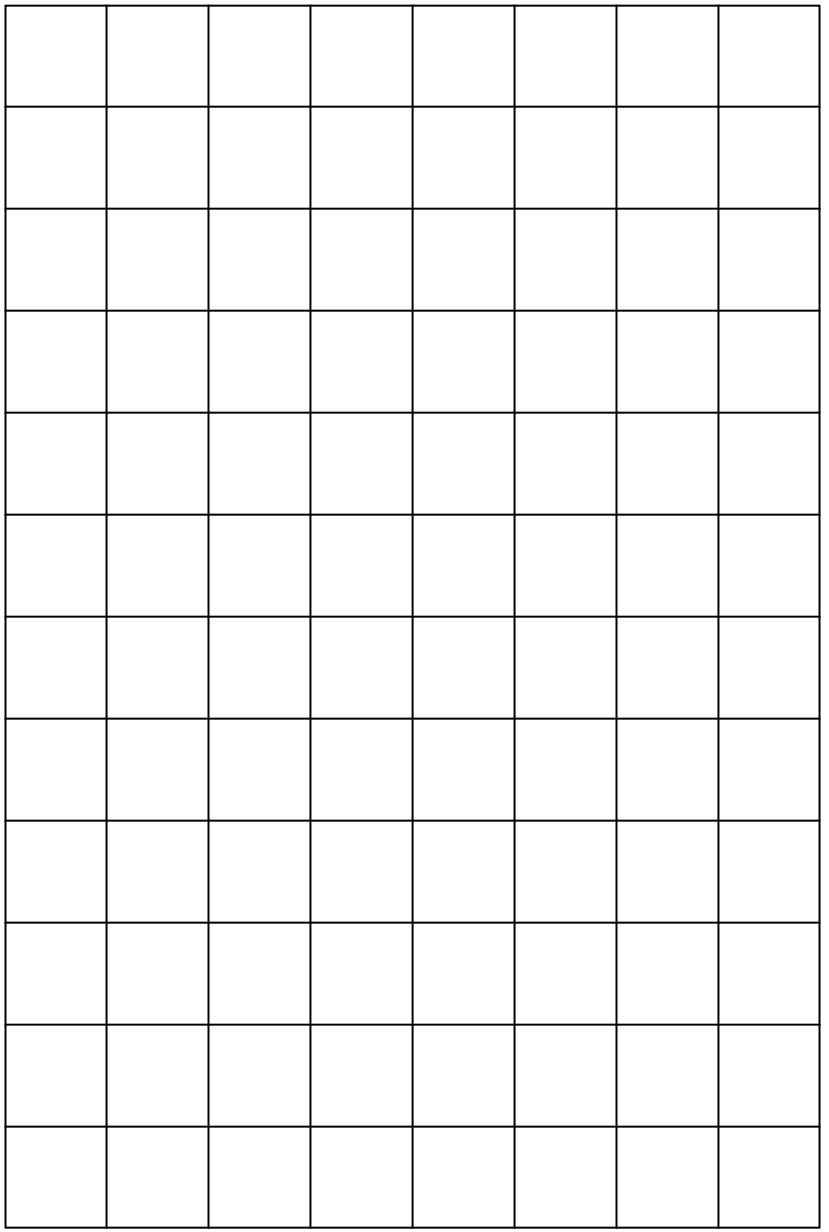
Make a list of places where fractions are used.
Attach the list to your collage.



How Many in a Kilogram?

While at the grocery store, ask a family member to tell how many apples (or bananas, or …) he or she thinks would be in 1 kg. Then add apples to the scale to make that mass. How close was the estimate?

Fraction Action Grid



Fraction Action

Follow these instructions to draw 3 shapes on the grid.

1. Draw a shape with 8 equal parts.

   Colour $\frac{1}{8}$ blue.

   Colour $\frac{3}{8}$ red.

   Colour $\frac{2}{8}$ green.

   What fraction is still white? _____

2. Draw a shape with 12 equal parts.

   Colour $\frac{3}{12}$ yellow.

   Colour $\frac{1}{12}$ brown.

   Colour $\frac{5}{12}$ orange.

   What fraction is still white? _____

3. Draw a shape with 10 equal parts.
   Use blue, green, and yellow to colour the shape.
   What fraction of the shape is blue? _____
   What fraction of the shape is green? _____
   What fraction of the shape is yellow? _____

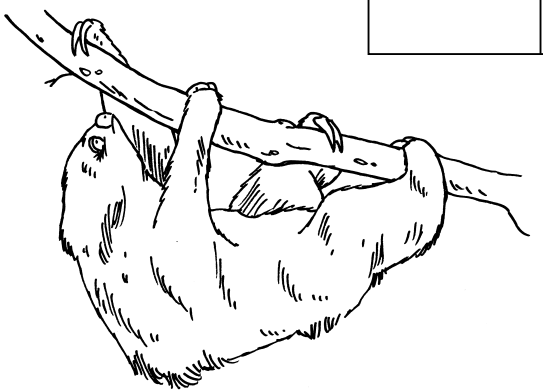
Slow Poke

At its fastest speed, a three-toed sloth travels 2 m in 1 min. If it keeps moving forward at the same speed, how far will it go in 10 min?

Complete the table!

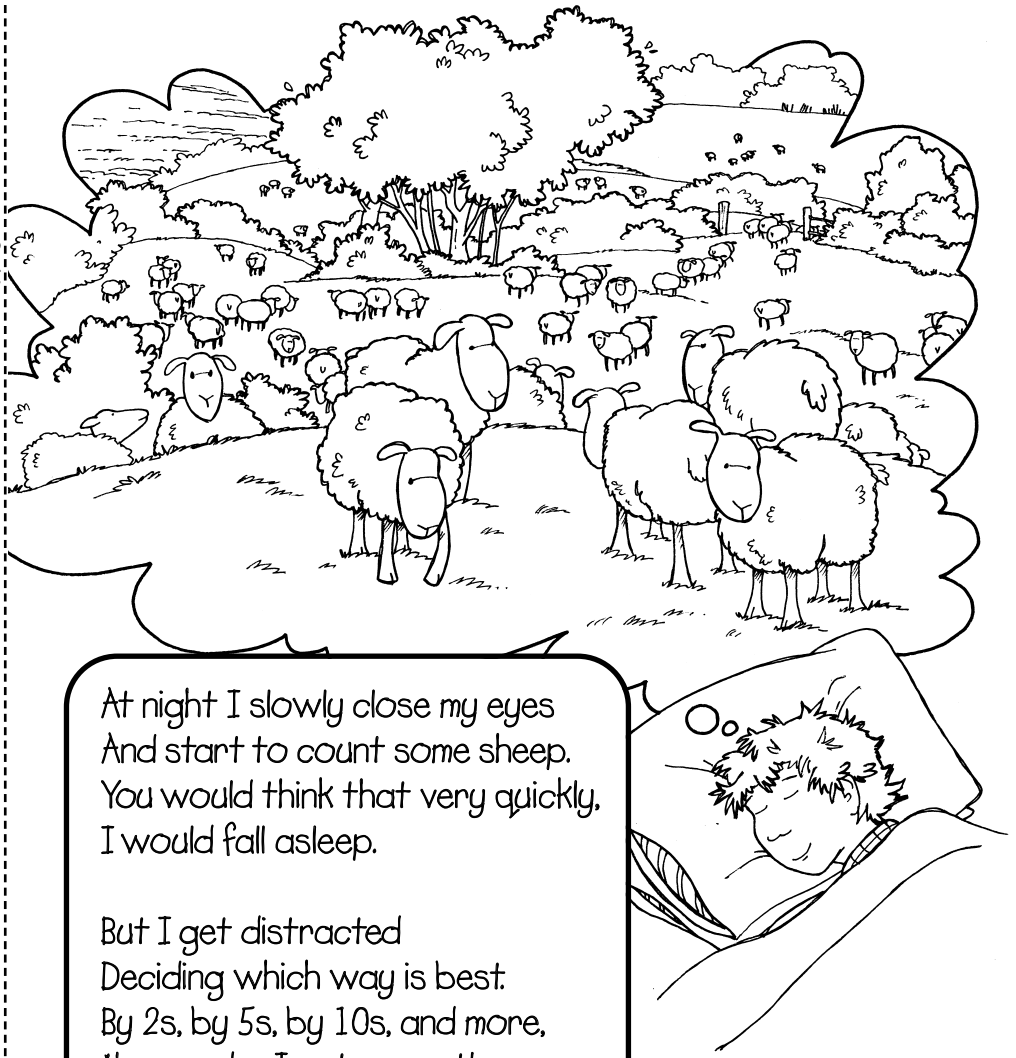
What patterns do you see?

Time (min)	Distance (m)
1	2



Fold

Math at Home



At night I slowly close my eyes
And start to count some sheep.
You would think that very quickly,
I would fall asleep.

But I get distracted
Deciding which way is best.
By 2s, by 5s, by 10s, and more,
No wonder I get no rest!

Math at Home 3

How Much Is a Gram?

A jellybean has a mass of about 1 g.

Search around the house for things that might be less than 1 g, about 1 g, and more than 10 g. Tally your findings.

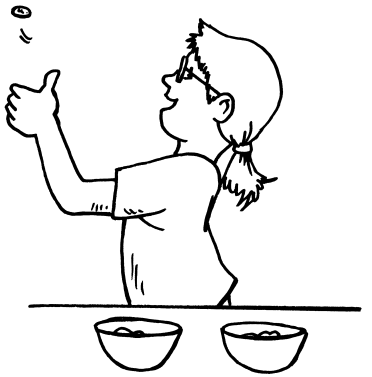
	Less than 1 g	About 1 g	More than 10 g
Tally			

Now, graph what you found in 2 different ways!

Sharing Cookies

You have 20 cookies.
You will share them equally with some friends.
What different numbers of friends can you share the cookies with?
How many cookies will each person get?

Guess My Product



You'll need:

- counters
- a 1 to 5 spinner
- 5 bowls

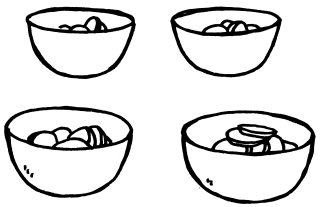
Take turns with a partner.

On your turn:
Spin the spinner. Put that many bowls between you and your partner.

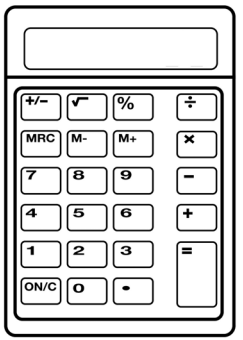
Have your partner cover her eyes.
Spin again. Put that many counters in each bowl.

Have your partner look and say how many counters altogether.
If she's right, she gets that many points.

Play until one of you reaches 50 points.



Mystery Number



Pick a number you think can be divided exactly. Enter it into a calculator and show it to a friend.

Now, secretly divide it by a number that makes equal groups.

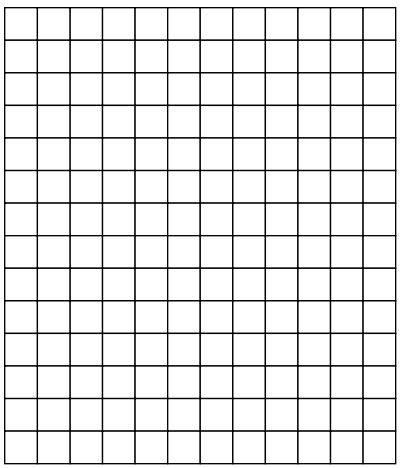
Show the answer to a friend and ask what you did to get that number.

At the Zoo!

Some children were asked how many times they have been to the zoo.
How many children have been to the zoo? _____
How many children were asked the question? _____

Make a line plot to show these data.

Times to the Zoo	Number of Children
0	𝍸
1	𝍸 𝍸 I
2	III
3	𝍸 III
More than 3	II



How Much Farther?

You can play this estimation game in the car.

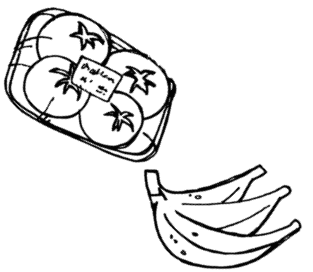
Ask the driver to watch the odometer and tell you when a new kilometre is about to begin. When you think you have driven a kilometre, say "STOP!" The driver watches the odometer and lets you know when you've really travelled 1 km.

Play several times to see how close you can get.

Hmm … How would your estimate change if you were riding a bike? Walking? Driving on the highway? In town?

At the Grocery Store

It's multiplication time! Search for items that come in groups.



3 bananas?
4 tomatoes?

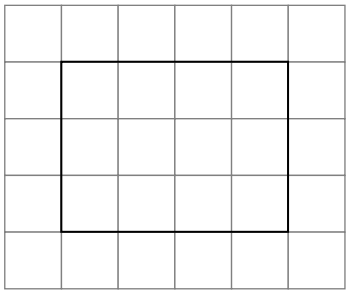
Think about how many you would have if you bought 2 packages? How about 3 or even 4 packages?

Rectangle Wrangle

The goal here is to draw the last 12-square rectangle. Before you begin, make 5 copies of the grid (right).

On your turn:
On the grid, draw a rectangle that covers 12 squares.

Say the multiplication and division sentence it represents.



So:
$3 \times 4 = 12$
$12 \div 3 = 4$

Take turns until no more 12-square rectangles can be made. The last person to draw a rectangle wins.

Want to play again?
Choose a different size rectangle.

What would a 10-square rectangle look like?
An 8-square rectangle?

Hmm … do you see a pattern?

Rectangle Wrangle Grid