3
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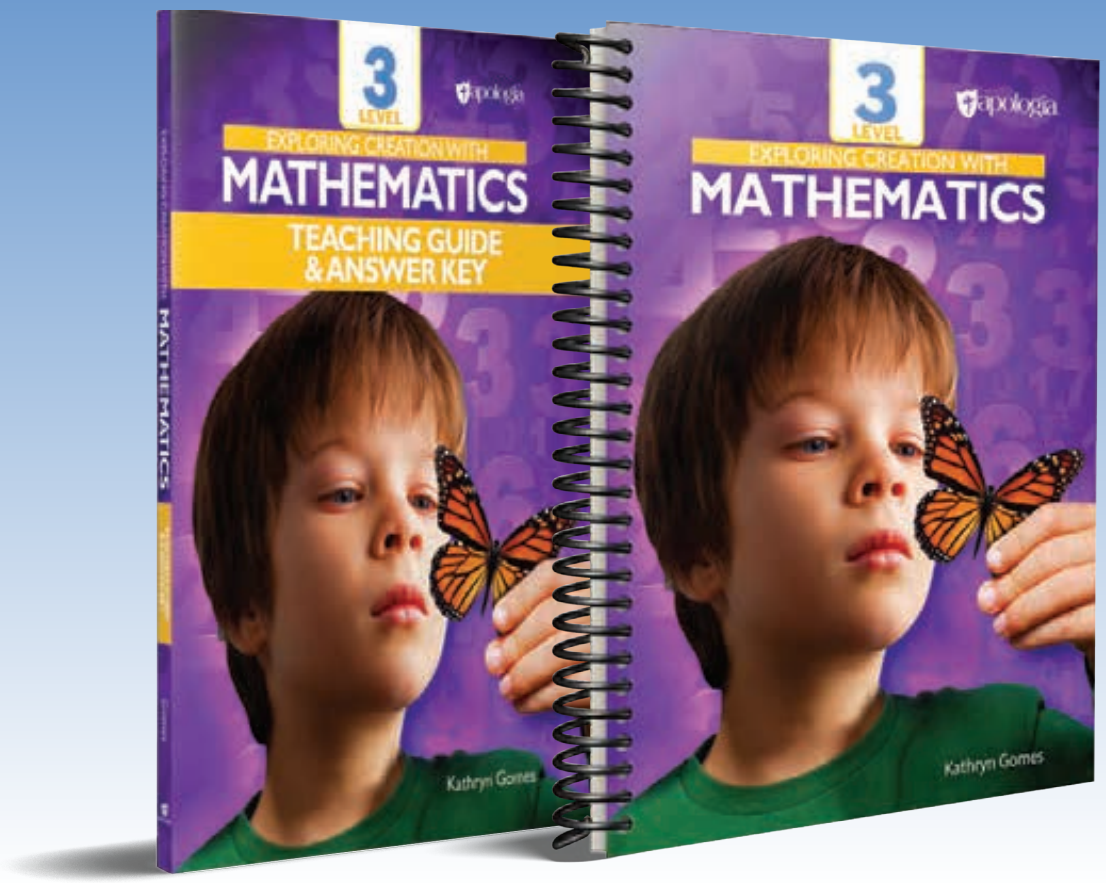
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EXPLORING CREATION WITH

MATHEMATICS



Kathryn Gomes



TEXTBOOK TABLE OF CONTENTS

SUPPLY LIST

ALL-IN-ONE STUDENT TEXT AND WORKBOOK UNIT 1

TEACHING GUIDE AND ANSWER KEY

FREQUENTLY ASKED QUESTIONS

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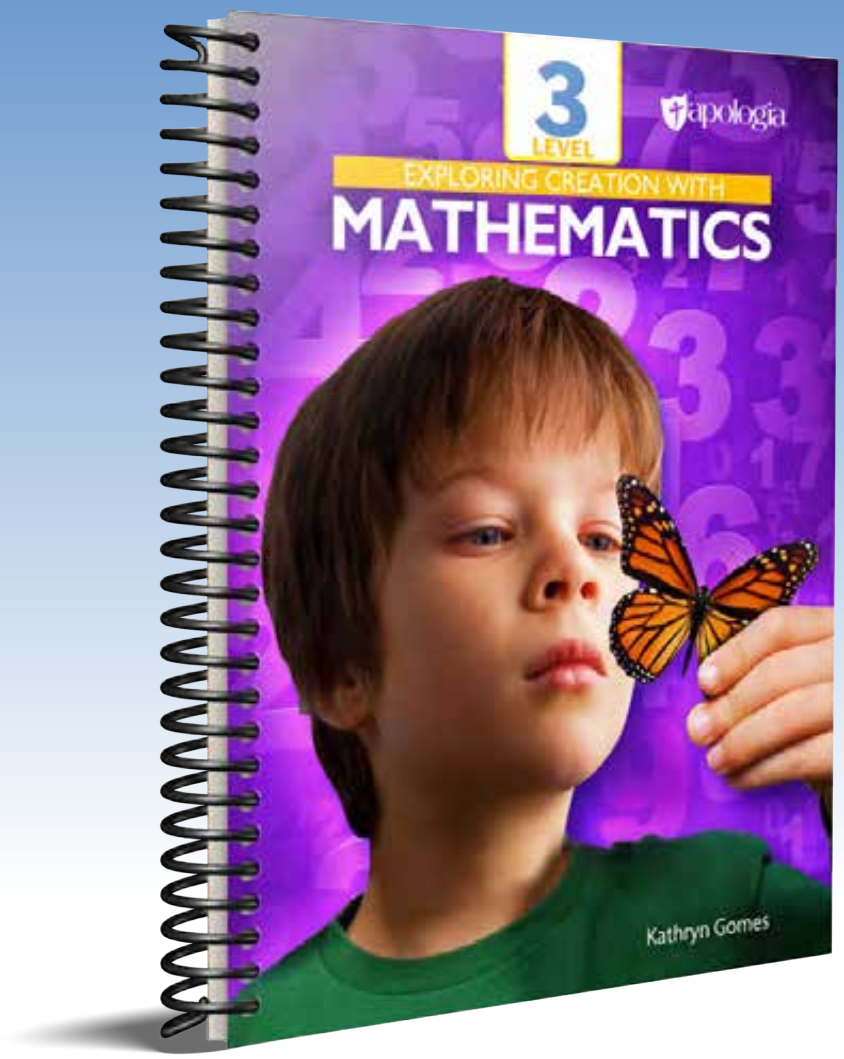
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COMPLETE SUPPLY LIST

- Base ten blocks
- Linking cubes
- Pattern blocks
- Fraction Tiles
- Multiplication flashcards with facts up to 10 x 10
- Division flashcards up to 100 ÷ 10
- Notecards
- Numbered cards such as Uno® cards
- Paperclips
- Dice
- Small objects (such as pennies, beans, etc.)
- Colored pencils
- Scissors
- Glue
- 80 Beads that are several different colors
- String
- Playdough
- Envelopes
- 2 manila folders
- M&M's (or another small candy or counter)
- Action figures, dolls, or stuffed animals
- Cupcake liners, ice cube tray, rubber bands or an egg carton to sort groups of counters
- A deck of cards
- Glue stick
- A timer
- Two blank posters boards
- Markers
- A ruler (inches and centimeters)
- A bag
- A bouncy ball
- A tape measure
- Masking tape
- A doorway
- Phone
- Scissors
- Brass fastener
- 1 liter liquid measuring cup
- Different liquid containers
- A tray
- 16 plastic cups
- A gallon container, a quart, and a pint
- Tape
- Two plastic cups
- A hanger
- A bird feeder (instructions to make your own are on page 72)
- Bird seed
- Notebook paper
- Dot stickers
- Analog clock
- A highlighter
- Stapler
- Markers
- Scratch paper
- Multiplication fact songs (many are available online)
- Dry measuring cups (1/4, 1/3, 1/2, and 1 cup)
- Water, flour or rice
- 4 Chenille stems/pipe cleaners
- 2 Graham crackers
- 2 oranges
- A pizza box
- Construction paper



THIS IS THE START OF THE ALL-IN-ONE STUDENT TEXT AND WORKBOOK SAMPLE

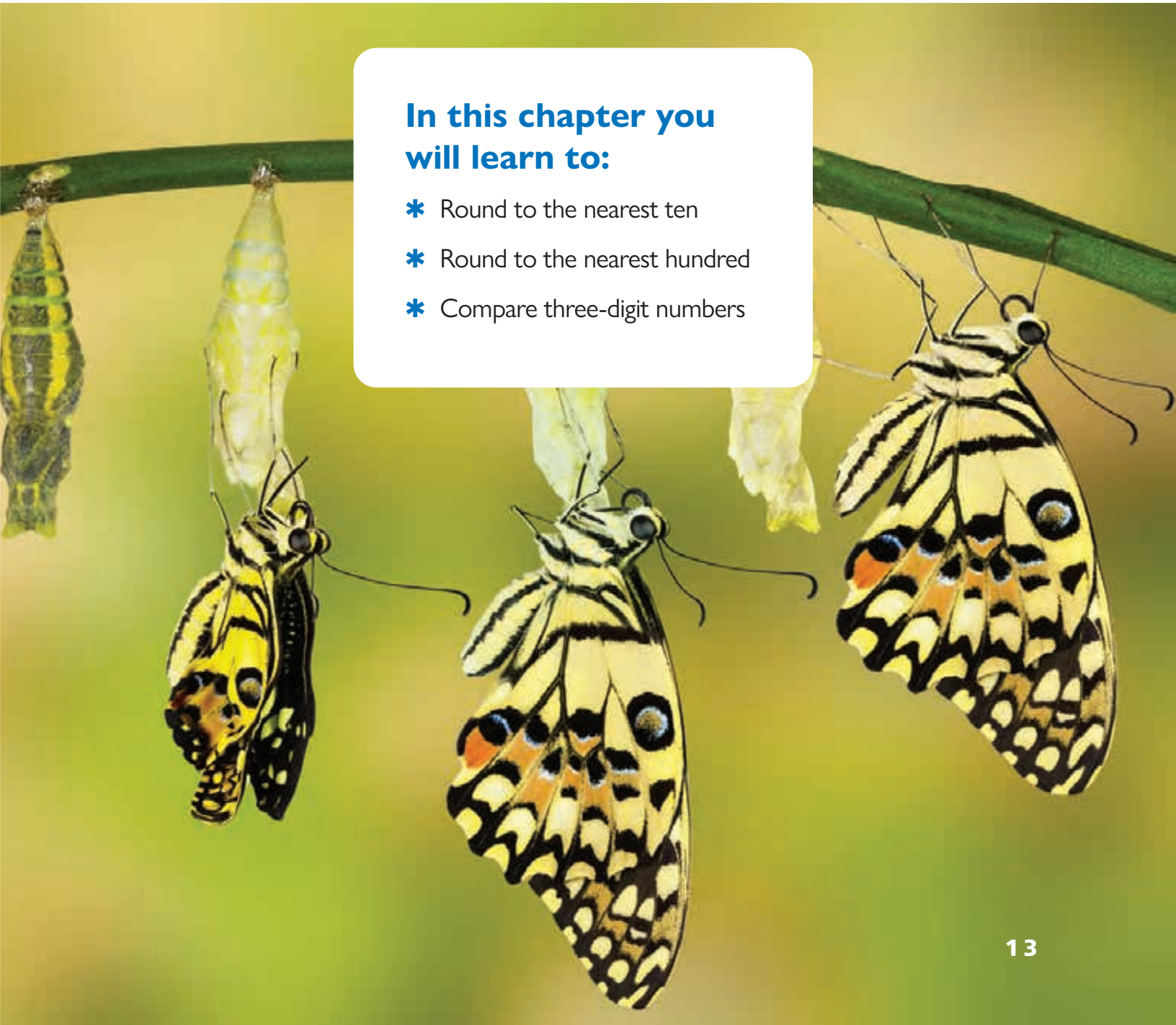
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CHAPTER

1

NUMBERS TO 1000



In this chapter you will learn to:

* Round to the nearest ten
* Round to the nearest hundred
* Compare three-digit numbers



RIGHT DIGIT, RIGHT PLACE

You Will Need:

- [ ] Paper
- [ ] Pencil

You Will Do:

1. Have your parent pick a secret number that is less than 1000 and has no repeated digits. Your job is to guess their number.
2. Write your first guess in the left column.
3. Now your parent looks at your guess. They write down how many digits are correct and then how many of them are in the correct place. The sample gameboard demonstrates this.
4. Continue guessing until you get the number right. If you realize a certain digit definitely isn't in the number, then cross it off at the top. In the example, the student knew that 2, 3 and 7 weren't in the answer.

Sample Gameboard

0 1 ~~2~~ ~~3~~ 4 5 6 ~~7~~ 8 9		
Guess	Digit	Place
245	1	0
723	0	0
518	2	1
561	3	3

0 1 2 3 4 5 6 7 8 9		
Guess	Digit	Place

Place Value

Place value is a system where the place of a digit affects its value. If you change the order of the digits, you get a different number. Look at these two examples.

Place Value Chart



341
three hundred forty-one

Hundreds	Tens	Ones
3	4	1

413
four hundred thirteen

Hundreds	Tens	Ones
4	1	3



Practice

Circle the value of the red digit.

590 500 50 5	272 200 20 2
370 700 70 7	486 600 60 6
124 100 10 1	907 700 70 7



Practice

Look at the numbers below. Write the correct number in each blank. There is only one correct choice for each blank.

604	929	173	218	316	833
714	296	581	529	972	597

A number less than 200	
A number between 900 and 950	
A number with the same tens and ones digit	
A number that has 7 ones	
A number that has 7 hundreds	
A number with zero tens	
A number between 200 and 250	
A number that has 8 tens	
A number with 3 hundreds	
A number that is less than 5 away from 300	
A number between 500 and 550	
A number with 2 ones	



MOVE TO THE NEAREST TEN

You Will Need:

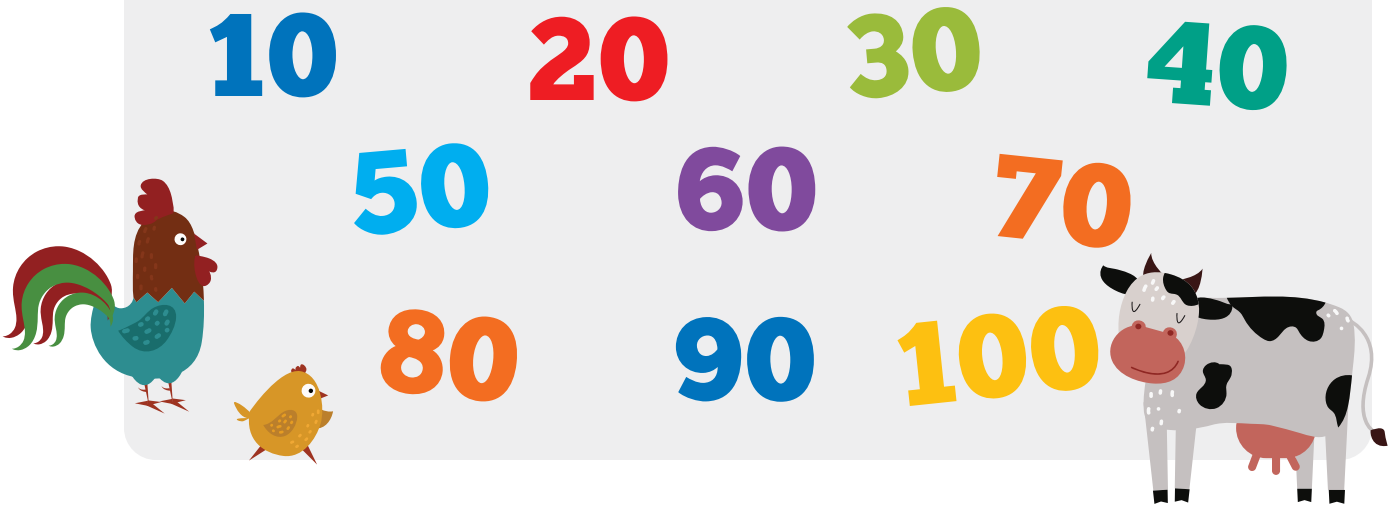
- [ ] 5 unit cubes from the base ten blocks set
- [ ] 20 Numbered cards with the numbers 0 to 9 (See comment in Answer Key)

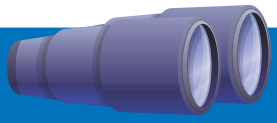
You Will Do:

1. Shuffle the numbered cards and put them in a pile face down. Draw two cards and use the results to make a two-digit number. The order of the digits is up to you.
2. Use a unit cube to mark the chart below with the number you created.
3. Now slide your cube to the closest tens number. These numbers are highlighted in blue. You may need to slide your piece left or right. If your number ends in a 5, it will be right in the middle of the chart. Slide right to the higher tens number. The numbers 95 to 99 round up to 100.
4. Repeat by drawing pairs of cards 4 more times and following steps 2-3.
5. Have your parent check your answers. Tell them how you made your decisions.

0	1	2	3	4	5	6	7	8	9	10
10	11	12	13	14	15	16	17	18	19	20
20	21	22	23	24	25	26	27	28	29	30
30	31	32	33	34	35	36	37	38	39	40
40	41	42	43	44	45	46	47	48	49	50
50	51	52	53	54	55	56	57	58	59	60
60	61	62	63	64	65	66	67	68	69	70
70	71	72	73	74	75	76	77	78	79	80
80	81	82	83	84	85	86	87	88	89	90
90	91	92	93	94	95	96	97	98	99	100

Rounding to Tens





Rounding: making a number simpler by changing it to another close by number.

Steps for Rounding:

1. Underline the digit you are rounding.
2. Look at the digit to the right of the underlined digit.
3. If it is 5 or above, give it a shove! (round up)
4. If it is 4 or below, let it go. (round down)

Tens numbers are easier to add and subtract. Because of this, it can be helpful to round other numbers to the nearest tens number. Sometimes you will round the number up to the closest tens number.

$$78 \longrightarrow 80$$

And sometimes you will round the number down to the closest ten number.

$$53 \longrightarrow 50$$

How do you know if you should round up or down? If the ones digit is 4, 3, 2, or 1, you should round down to the nearest ten.

$64 \longrightarrow 60$
$73 \longrightarrow 70$
$22 \longrightarrow 20$
$81 \longrightarrow 80$

If the ones digit is 5 or higher, you round up to the nearest ten.

$85 \longrightarrow 90$
$36 \longrightarrow 40$
$67 \longrightarrow 70$
$48 \longrightarrow 50$
$29 \longrightarrow 30$

If your number is between 95 and 99, you round to 100. 100 is a tens number because 10 tens make 100.

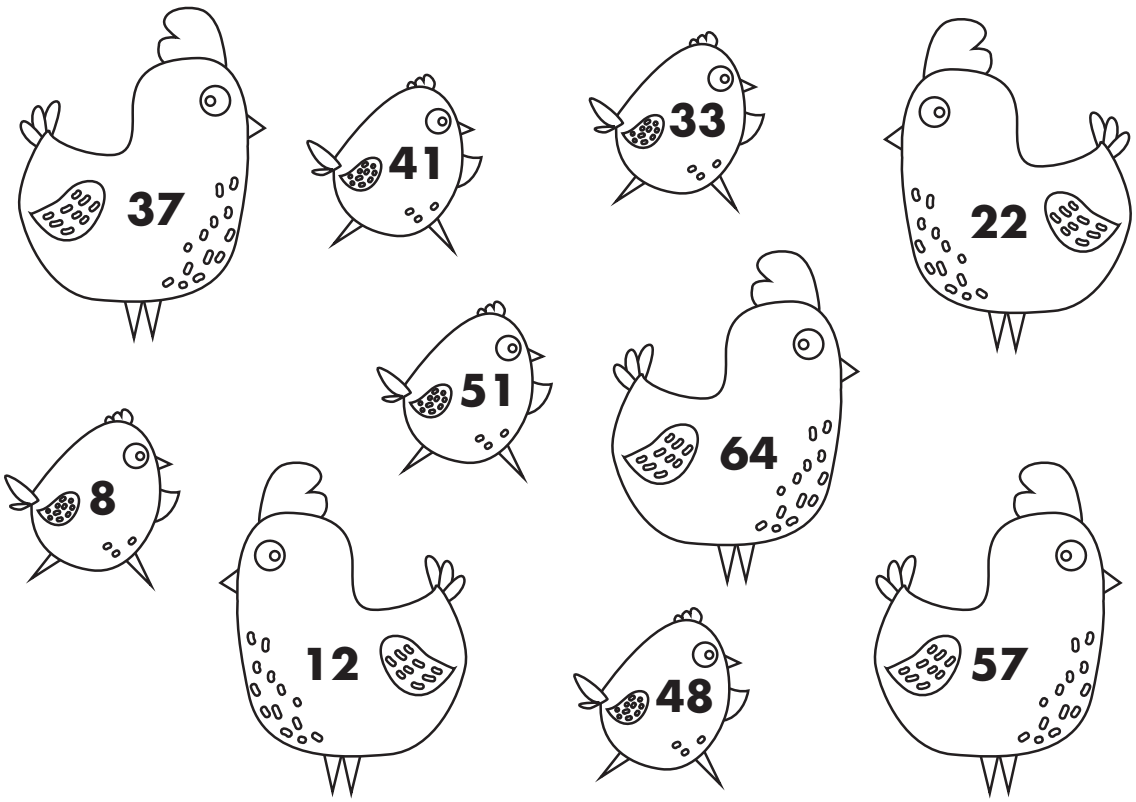


Practice

Round each number to the nearest tens number. Then color in the bird with the correct color.

Color Key:

10 = red	30 = blue	50 = green
20 = orange	40 = purple	60 = yellow



Challenge!

Round 98 to the nearest ten.
Hint: look at the chart in the opening activity.

98 → ☐



ROLL AND ROUND (TO THE NEAREST TEN)

You Will Need:

- ☐ A pair of dice
- ☐ A colored pencil
- ☐ Scratch paper

You Will Do:

1. Roll the dice. Use the numbers on the dice to write down a two-digit number on scratch paper. You can choose the order of the digits.
2. Round the two-digit number to the nearest ten. Color in that space on the game board below.
3. Continue rolling until you are able to color in 5 spaces in a straight line.

10	50	60	60	70
20	40	70	50	50
30	30	10	40	30
40	20	20	30	20
50	10	40	20	10
60	70	60	10	60

Rounding to Hundreds

In the last lesson, you learned how to round to the nearest ten. In this lesson, we will round to the nearest hundred. The steps are the same, we will just be rounding to a different digit.

Steps for Rounding:

1. Underline the digit you are rounding.
2. Look at the digit to the right of the underlined digit.
3. If it is 5 or above, give it a shove! (round up)
4. If it is 4 or below, let it go. (round down)

Example: Round 431 to the nearest hundred.

First, underline the hundreds digit.

4̲31

Now look to the right of that digit. Is it 5 or above or 4 or below?

4̲31

The digit is a 3, so we will round down to the closest hundred.

400

Example: Round 574 to the nearest hundred.

5̲74

First, underline the hundreds digit.
Now look to the right of that digit.
Is it 5 or above or 4 or below?

5̲74

The digit is a 7, so we will round up to the closest hundred.

600

The ones digit is a 4, but that doesn't matter. We only need to look at the tens digit.



Practice

Round each number to the nearest hundred.

264	_____	637	_____	239	_____
189	_____	350	_____	719	_____

Round each number to the position of the digit underlined, either the nearest 10 or the nearest 100.

6<u>5</u>2	_____	2<u>1</u>1	_____	7<u>0</u>7	_____
<u>6</u>52	_____	<u>2</u>11	_____	<u>7</u>07	_____

The average adult North African ostrich weighs about 245 pounds. Round its weight of 245 to the nearest ten. Round its weight of 245 to the nearest 100.

Nearest ten: _____ pounds

Nearest hundred: _____ pounds





ROUND UP OR ROUND DOWN?

You Will Need:

- [ ] Lesson 4 Activity Sheets (in the back of the answer key)
- [ ] Scissors

You Will Do:

1. Carefully tear out your Round Up or Round Down mat from the back of the answer key. Then tear out the Round to the Nearest Ten sheet and cut apart the two-digit numbers.
2. Practice sorting them on the mat according to whether you'd round them up or down to the nearest ten. Check your answers with your parent.
3. Carefully tear out the Round to the Nearest Hundred sheet and cut apart the three-digit numbers.
4. Practice sorting them on the mat according to whether you'd round them up or down to the nearest hundred. Check your answers with your parent.





Practice

Round each number to the nearest ten.

36 _____ 409 _____

72 _____ 278 _____

89 _____ 531 _____

42 _____ 982 _____

66 _____ 713 _____

Round each number to the nearest hundred.

411 _____ 309 _____

789 _____ 711 _____

517 _____ 650 _____

561 _____ 467 _____

245 _____ 384 _____



ROLL AND ROUND (TO THE NEAREST HUNDRED)

You Will Need:

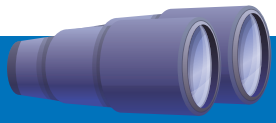
- [ ] 3 dice
- [ ] Colored pencils
- [ ] Two players



You Will Do:

1. Player 1 rolls the dice and uses the numbers on the dice to make a three-digit number. Player 1 can choose the order of the digits.
2. Player 1 rounds the three-digit number to the nearest hundred and colors in that space on the game board below.
3. Player 2 rolls the dice and makes a three-digit number. Player 2 can choose the order of the digits.
4. Player 2 rounds the three-digit number to the nearest hundred and colors in that space on the game board below.
5. The players continue to take turns rolling, rounding, and coloring in spaces. The first player to color in 5 spaces in a row, column, or diagonal wins. If there are no spaces available to color, the player's turn is over. If no player can make 5 spaces in a line, the one with the most colored spaces wins the game.

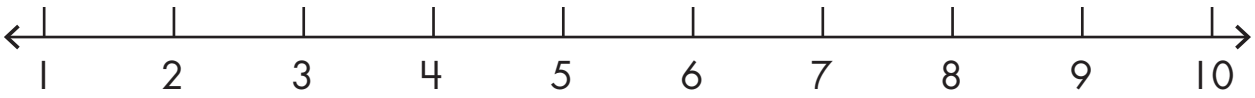
100	500	600	600	700
200	400	700	500	500
300	300	100	400	300
400	200	200	300	200
500	600	400	200	100

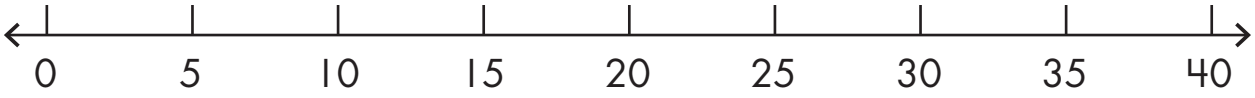


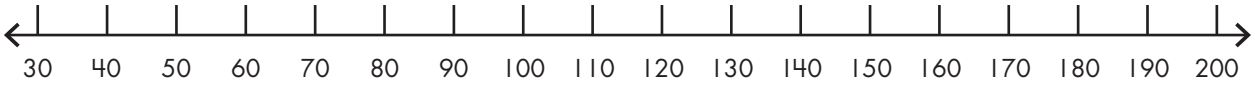
Number line:
A line with evenly spaced numbers on it.

Number Lines

A **number line** is one way we can picture the order of numbers. Number lines can increase by 1's, 5's, 10's, or another consistent amount. They always increase by the same amount each time. Look at the examples of number lines below.







Number lines don't always start at zero. They can start at any number as long as they increase by the same amount each time.



Practice

Look at each number line and determine how it is increasing. Fill in the missing numbers on each number line.

1. 0 1 ☐ 3 ☐ ☐ 6 7 8 ☐ 10

2. 0 ☐ ☐ 6 8 ☐ 12 14 16 18 ☐

3. 20 ☐ 40 50 ☐ ☐ 80 90 100 ☐ 120

4. 300 ☐ 500 ☐ 700 800 ☐

5. 24 ☐ ☐ 30 ☐ 34 36 38 ☐ 42 44

6. 75 ☐ ☐ 90 95 ☐ 105 ☐ 115



Practice

Draw a dot on the number line showing where each number would be located. Then round the number to the nearest ten. The first one has been done for you.



32 30

48 _____

71 _____

65 _____

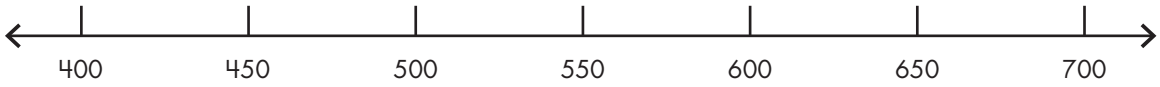
57 _____

28 _____

17 _____

13 _____

Draw a dot on the number line showing where each number would be located. Then round the number to the nearest hundred.



413 _____

678 _____

649 _____

464 _____

530 _____

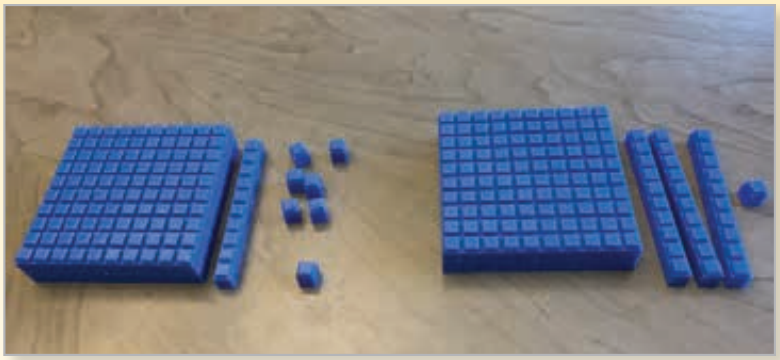
562 _____



BUILD AND COMPARE

You Will Need:

- ☐ Base ten blocks

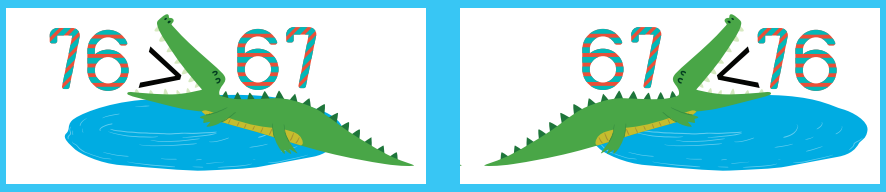


You Will Do:

1. We are going to decide which of the three-digit numbers below is greater.
2. Start by building each number with base ten blocks.
3. Compare the two sets of blocks. Which one represents more cubes?
4. Circle the greater number.

217 231

Comparing Numbers

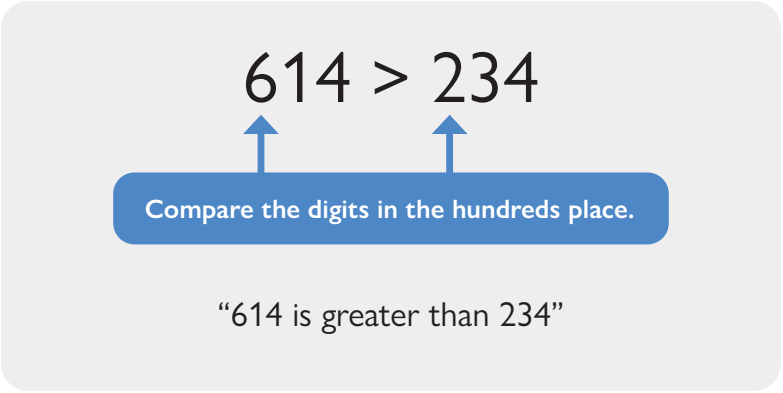


76 is greater than 67. 67 is less than 76.

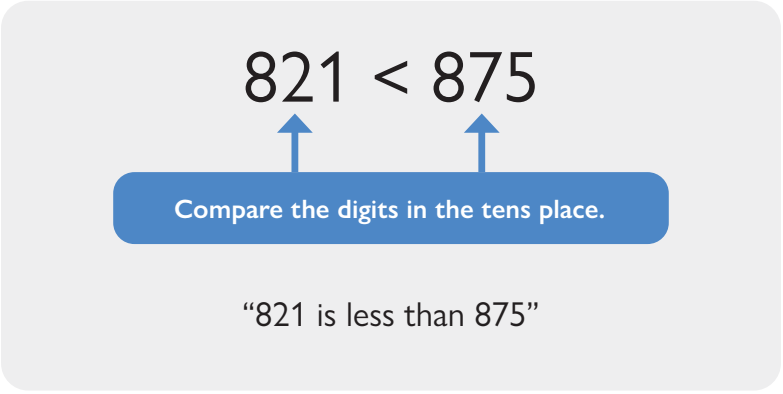
When we compare numbers, we use symbols to show that one number is greater than, less than, or equal to another number. Review these three math symbols below.

422 > 205	119 < 780	645 = 645
422 is greater than 205.	119 is less than 780.	645 is equal to 645.

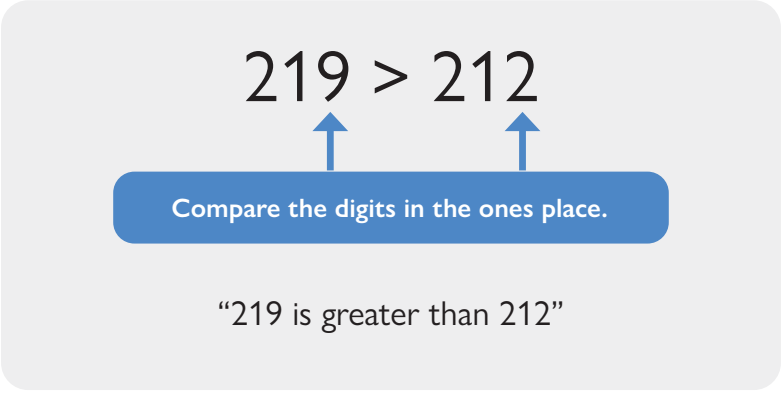
Remember that when we compare numbers, we look at the digits in the greatest place first. If we are comparing three-digit numbers, we start by comparing the hundreds digit.



If the hundreds digits are the same, we then compare the tens digits.



We only compare the ones digits if the hundreds and the tens digits are the same.





Practice

Compare each of the numbers below.
Write in the > , < , or = symbol.

487 ◯ 103	920 ◯ 980
278 ◯ 336	334 ◯ 327
273 ◯ 273	872 ◯ 693
145 ◯ 541	166 ◯ 167

The chart below shows which birds were spotted on Hawk Mountain in the fall of 2018. Put the birds in order from least frequently seen to the most frequently seen by writing their names in the correct order on the lines below.

Type of bird	Bird count
Bald Eagle	541
Blue Jay	980
Turkey Vulture	543
Cooper's Hawk	591



Hawk Mountain Sanctuary is in Berks County, Pennsylvania.



Bald eagle

_____, _____, _____, _____

Mixed Review



Skills Check

You should have been practicing adding two-digit numbers each day as part of your skills practice. Here are a few more for you to try.

$$\begin{array}{r} 45 \\ +\ 23 \\ \hline \end{array} \qquad \begin{array}{r} 28 \\ +\ 22 \\ \hline \end{array} \qquad \begin{array}{r} 67 \\ +\ 19 \\ \hline \end{array}$$

Round each number to the nearest ten.

46 _____

61 _____

893 _____

377 _____

Round each number to the nearest hundred.

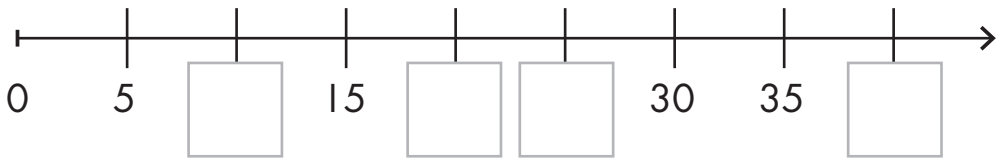
516 _____

298 _____

607 _____

751 _____

Look at the number line and fill in the missing numbers.



Compare each of the numbers below. Write in the > , < , or = symbol.

197 ◯ 179

303 ◯ 278