LEARNING RESOURCES®

Dear Teachers,

The following pages have been designed with you in mind. Flip through this book to find exciting, hands-on ideas for teaching fraction concepts with a pocket chart! (LER 2206)

Pocket Chart Math – Place Value has been developed to provide creative teaching ideas and reproducible activities to support the use of a pocket chart. Suggested activities are designed to attract all types of learners. They encourage listening, speaking, observing and manipulating cards to familiarize children with the concept of place value. In addition, this book contains 168 ready-to-use cards to aid you in teaching place value. The cards display illustrated pictures, numbers, and words to use within each lesson, and are color-coded for handy reference. A Cards-At-A-Glance chart shows what is pictured on each card, and is located in the back of the book for easy reference. Also included is a Reading List to help you build a classroom library filled with place value concepts.

This book quickly becomes a compact storage file! Tear out the sheets of cards along the perforated lines. Laminate the cards for extra durability, cut them, and store them in the pocket provided on the back cover of the book. As you use them, tear out the blackline master pages for photocopying, then use the folder pocket on the inside front cover for storage.

Pocket Chart Math
Place Value

Introduction Strategies

1. Review basic counting by ones, tens and hundreds with students. Ask them to count to ten by ones, count to one hundred by tens, and count to one thousand by hundreds. Say each number out loud until they are familiar with it.

2. Introduce place value concepts with even and odd numbers. Do an activity with even and odd numbers on the pocket chart. Place the terms *even* and *odd* in the pocket chart. Then list various 2- or 3-digit numbers (using the number cards) in a column in the pocket chart. Ask students if they know what "even" or "odd" means. Explain that *even* numbers always end in 0, 2, 4, 6, or 8. Odd numbers always end in 1, 3, 5, 7, or 9. Then, invite them to look at the numbers you've placed in the pocket chart, and move them under the correct heading, *even* or *odd*. Continue this activity with examples in your classroom. (Is there an even or odd number of girls/boys here today? Look at the calendar. Is today's date an even or odd number?, etc.) Then have students find their own examples around the room to share with the class!

3. Introduce the term "digit" to the class as an introductory place value concept. Place the title card *Digit?* in the pocket chart. Ask if anyone can explain what the term means. Lead them to understand that a *digit* (DIJ it) refers to any single number within a number. Place the number *123* in the pocket chart. Explain that the 3, the 2, and the 1 are all digits in the number *123*. The number, as a result, is a 3-digit number, or has 3 digits in it. Share other examples as well.

4. Build on the lesson about digits by placing various 2- and 3-digit numbers in a column in the pocket chart. Review the Strategy 3 by asking which numbers in the pocket chart are 2-digit numbers or 3-digit numbers. Further explain that each digit also has a name, depending on where it falls within the number. Starting from the right, point to the ones digit, etc. and explain that "this digit is in the *ones* place/the *tens* place/the *hundreds* place." Ask students to repeat this as you point to the digits again. Choose a heading from the *ones, tens,* or *hundreds* title cards to place before the word *digit?* in the pocket chart. For instance, if you choose *ones digit*? as your title, invite children to name the number in the ones digit for each example you've provided. Do the same thing with *tens* and *hundreds*.
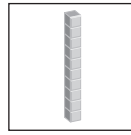
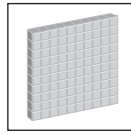# Teaching Notes: Place Value: 1s to 100s with Manipulatives

Cards needed:

Place Value Manipulative Cards:
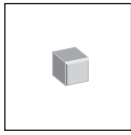
ones cube	tens rod	hundreds flat

yellow (☀)

0

1

=

green (☀)

one	ones
ten	tens
hundred	hundreds

red (☀)

Place	Value

Presenting the concept:

Place the title *Place Value* at the top of the pocket chart. Based on the introduction strategies, students should have an understanding that all numbers are either *even* or *odd*, they are made up of *digits*, and the digits fall into a place: the ones place, tens place, or hundreds place. Each place, as named, has a value assigned to it.

Use this introductory lesson to explain the reasoning behind the place names. Pass out a few of each of the blue place value cards to students. Give them an opportunity to look at them and explore any relationships they might see among them.

Then, starting with the ones cube card, ask children, "How many cubes do you count on this card?" (1) "This cube represents one." Place 10 of these cards in the pocket chart, and ask, "How many 1s are there? (10) Is there another card that shows this same amount? (the tens rod)." Explain to children that this card represents ten, or ten ones. Place the = and a rod card in the pocket chart to show the concept that 10 ones = 1 ten.

Continue the lesson by placing 10 rod cards in the pocket chart. Ask children to count by 10s to tell you how many cubes are shown in the pocket chart (100). Ask,"Is there a card that shows this same amount? (the hundreds flat)." Explain to children that the flat represents one hundred ones, or ten tens. Place the = and a flat card in the pocket chart to show the concept that 10 tens = 1 hundred.

Complete the lesson with a review of the cards and what they mean. Place cards in the pocket chart to summarize "*10 ones = 1 ten, and 10 tens = 1 hundred.*"

Follow-up activity:

Invite children to play a card game similar to "War," with the blue place value manipulative cards. Deal out six cards to each player, face-down. Each player looks at his or her cards, and counts the ones, tens, and hundreds separately. Each player compares their ones cube amount. ("I have 6 ones. You have 3 ones. I win!")Players do the same with the tens and hundreds amounts. If there is a tie, each player chooses another card from the extra card pile until it is possible to compare. The player with the higher number keeps all the cards. When all cards are used, the player with the most cards wins the game. For advanced play, players can compare all of their cards, as one number, at once.
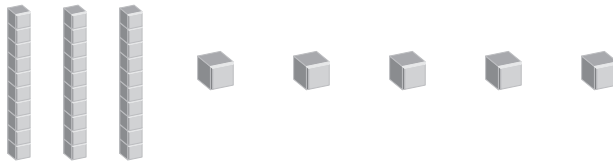
Name _____

Place Value: 1s to 100s
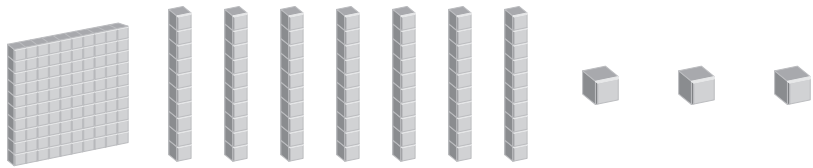
Directions: Count the cubes, rods, and flats shown below.
Write the amount on the line.

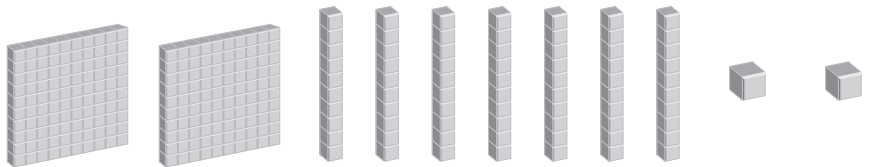1. _____

2. _____

3. _____

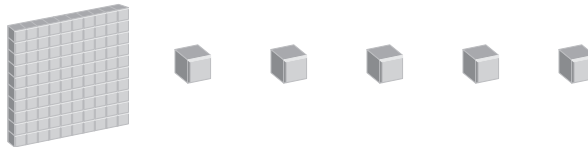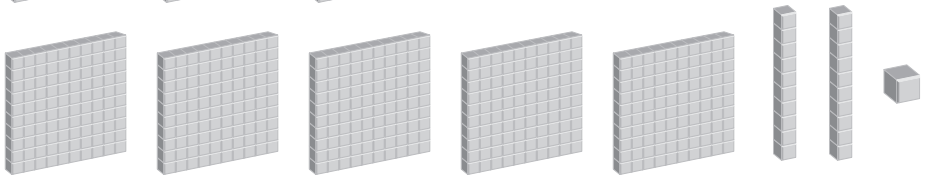4. _____

5. _____
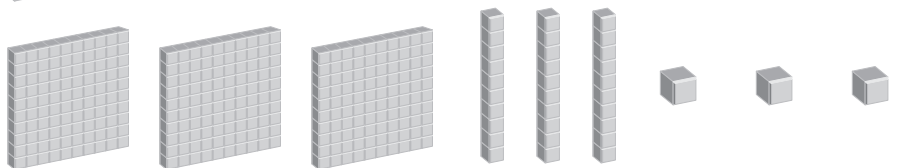
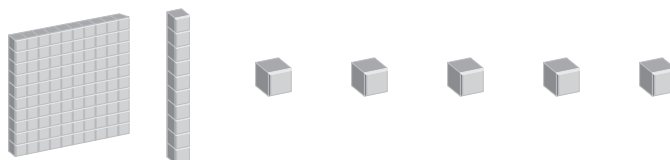6. _____

7. _____
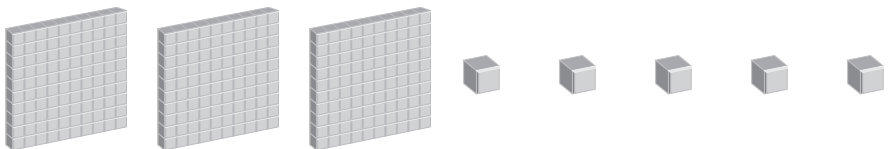
8. _____
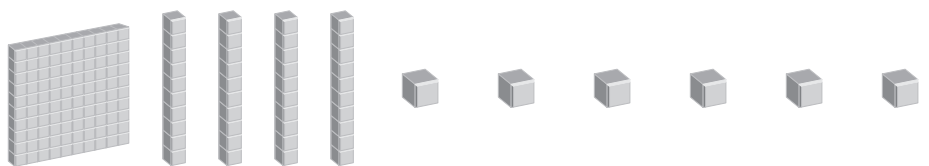
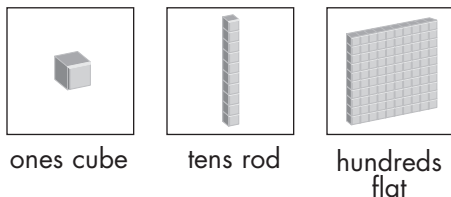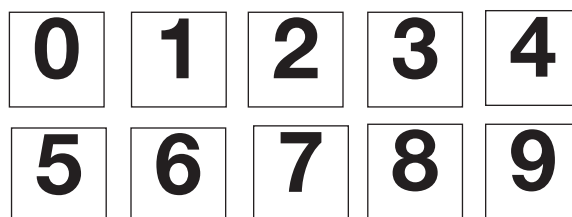9. _____

Teaching Notes: Using Manipulatives to Represent Numbers

Cards needed:

Place Value Manipulative Cards:

ones cube   tens rod   hundreds flat

yellow (☀)

0	1	2	3	4
5	6	7	8	9

green (☀)

| ones	tens	hundreds

Presenting the concept:

This lesson gives children an opportunity to visualize what amounts mean by using the blue place value manipulative cards. Place the *hundreds, tens,* and *ones* title cards in a row at the top of the pocket chart. Underneath the titles, start by placing a 1-digit number under the *ones* column in the pocket chart. Have the manipulative cards sorted into three piles at the base of the pocket chart for students. Ask for a volunteer to come up and place manipulative cards in the pocket chart that represent the amount. Then, try a 2-digit and a 3-digit number the same way. Each time students come up to place manipulative cards under the number, ask them to say the number out loud, then explain why they chose those particular cards to complete the activity.

Follow-up activity:

Do the same activity in a center for students. Have the manipulative cards sorted into three piles and stacked near the pocket chart. Place a variety of numbers in the place value columns, and ask students to represent them using manipulative cards. (Some numbers may require students to re-use the cards from previous problems.) When a student is finished, ask him or her to mix up the numbers for the next student to try.
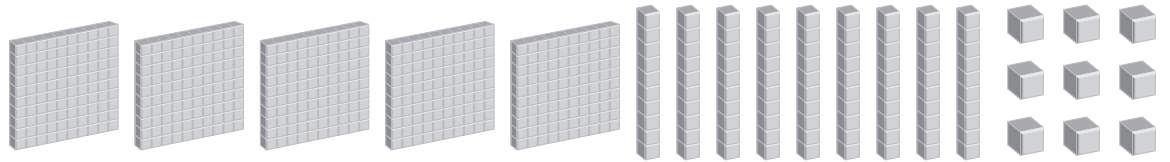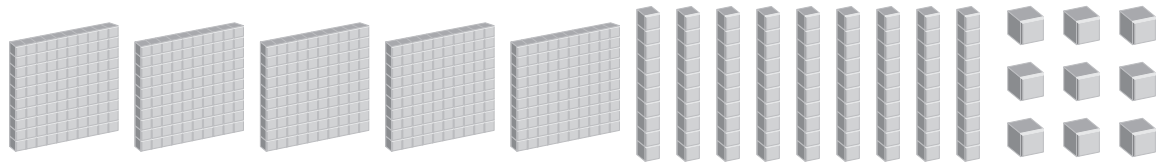
tens

Name _____
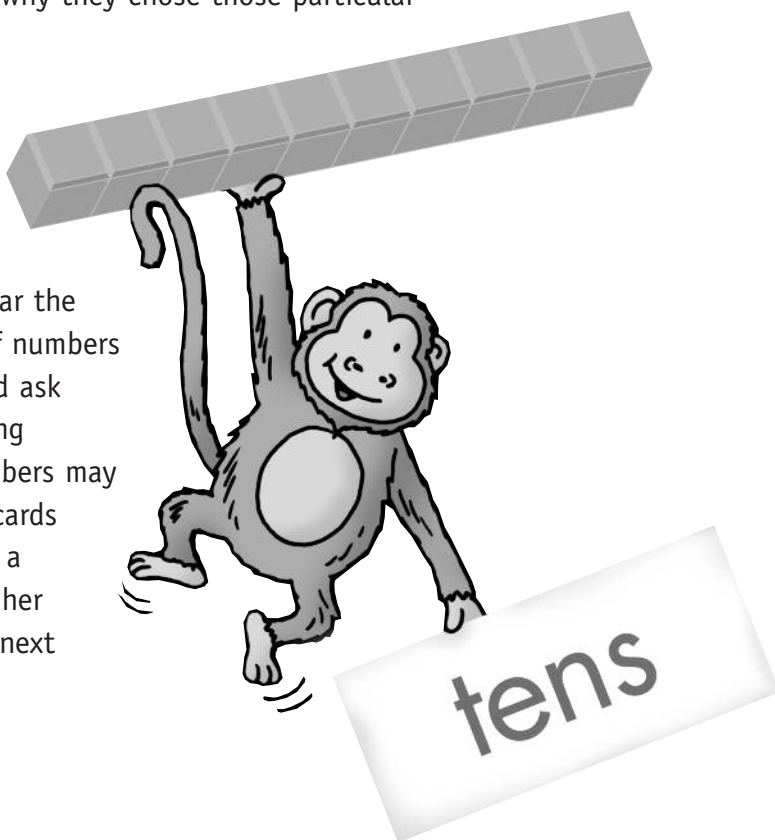
Using Manipulatives to Represent Numbers

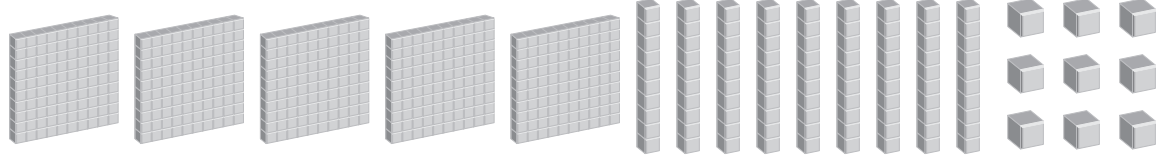Directions: Look at the numerals below. Circle the least amount of flats, rods, and cubes needed to represent the number correctly.
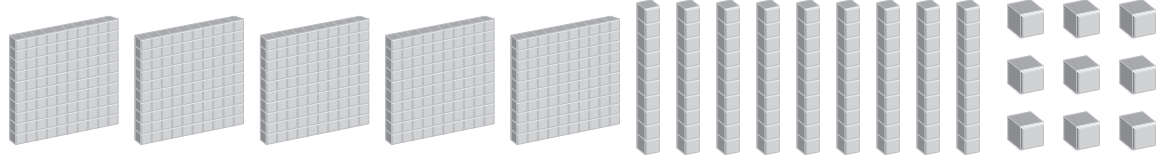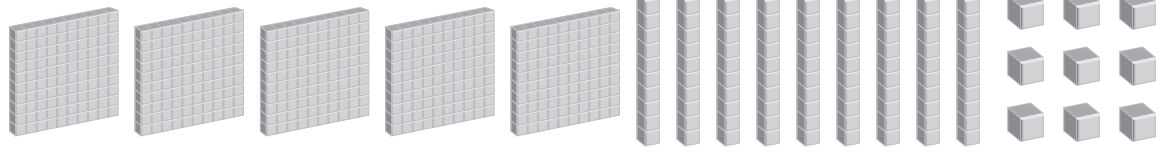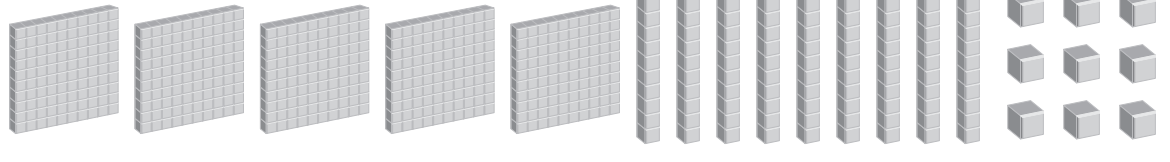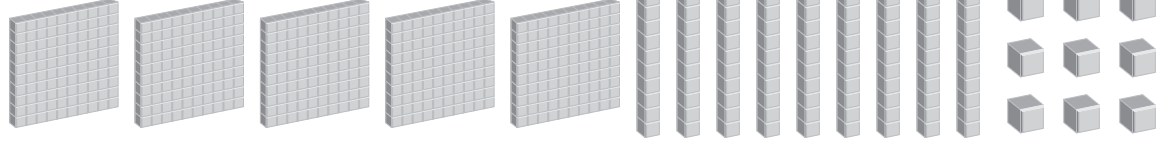
1. 42

2. 153

3. 19

4. 28

5. 497

6. 510
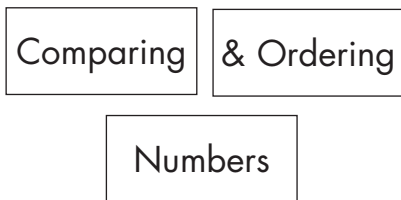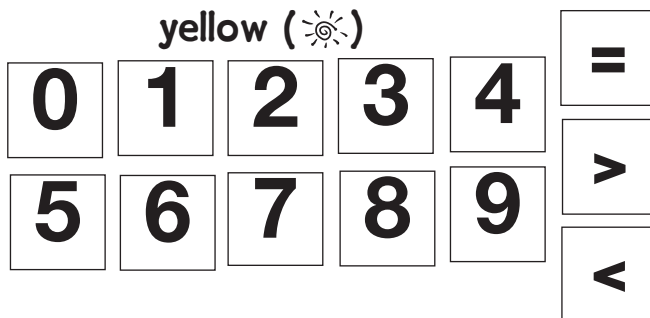
7. 55

Teaching Notes: Comparing & Ordering 2 and 3-digit Numbers

Cards needed:
red (☀)

Comparing	& Ordering

Numbers

yellow (☀)

0	1	2	3	4	=
5	6	7	8	9	>
					<

Presenting the concept:

Place the title *Comparing & Ordering Numbers* at the top of the pocket chart. Then, place two 2-digit numbers in a row, (*23* and *25*), with a space between them. Ask students to say the numbers out loud. Then ask them to tell you which number is bigger (*25*). Invite a student to come up and place the correct < or > symbol between the numbers, and explain how he or she knew to do this. Lead students to understand that when comparing numbers, start from the left and work to the right, comparing similar digits. "Both of these numbers have 2 digits, so start in the tens column. Both numbers have a 2 in the tens column, so we move one digit to the right, to the ones column. One number has a 3, and the other has a 5 in the ones column. We know 5 is more than 3, so *25 > 23*."

Try another example, *25* and *125*. Ask students to remind you how to compare these numbers. Starting at the left, we can see that one number has a 1 in the hundreds place and the other number has nothing, or 0 in the hundreds place. This allows us to compare the numbers based on the hundreds digit. We know 0 is less than 1, so *25 < 125*.

Try a 3-digit example, *302* and *322*. Walk students through the comparing procedure again. "Starting at the left, both numbers have a 3 in the hundreds place, so we move to the right, the tens place. One number has a 0, and the other has a 2 in the tens place, so we can stop here and compare. We know that 0 is less than 2, so *302 < 322*."

Based on their knowledge of comparing, students should now be able to put an array of numbers in order from least to greatest, or vice-versa. Put a few numbers in a column in the pocket chart (*4, 63, 163, 36*). Lining up the digits vertically will allow students to compare place values easily. Starting at the left, students should immediately see that one number has a 1 in the hundreds place, making it the largest number. Move *163* to the side, so students can continue comparing the other numbers. Two numbers, *36* and *63*, have tens digits to compare. Students should see that 6 > 3, and deduce that *63 > 36*. This leaves the 1-digit number, *4*, as the smallest in the group. The answer should read *163 > 63 > 36 > 4*. (You may need additional < > cards to extend the activity.) Continue this activity with other examples. If you think students are ready, you can go on to the lesson and activity on page 28-29, *Comparing and Ordering 4 and 5-digit numbers.*

Activity 3

Comparing & Ordering 2- and 3-Digit Numbers

Directions: Compare the numbers below.
Place a > or < in the box between the numbers.

1. 24 ☐ 35

2. 14 ☐ 41

3. 196 ☐ 192

4. 101 ☐ 111

5. 210 ☐ 21

6. 987 ☐ 879

7. 333 ☐ 222

8. 575 ☐ 755

9. 421 ☐ 412

10. 394 ☐ 994

For 11-15: Write the numbers in order from least to greatest on the lines below. Use commas between the numbers when you list them.

11. 23, 26, 21, 20

_____

12. 145, 175, 154, 189

_____

13. 3, 133, 103, 113, 130

_____

14. 14, 194, 159, 196, 105

_____

15. 6, 666, 600, 606, 66, 16

_____

Teaching Notes: Rounding 2- and 3-Digit Numbers

Cards needed:

red (☀)

Rounding	Numbers
to the	nearest
up	down

green (☀)

one	ten	hundred

yellow (☀)

0 - **9**

Presenting the concept:

To start the lesson, use your classroom as a learning tool. Ask 10 students to stand up in a line in front of the class. Situate them between two walls, (for example, the wall with the door and one with the windows). Say, "students who are standing closer to the wall with the door, gather by the door. Students who are standing closer to the wall of windows, gather by the windows." Observe what the children do. Work together with the class to determine where they should stand.

Link this kinesthetic lesson to visual learning with a number line. Draw a number line (0-10) on the board for students to see. Choose a number (3), and ask students if the number is closer to 0 or 10. Let them determine that 3 is closer to the 0. Try this activity with other numbers on a number line, leaving 5 for last. Take guesses on which 5 is closer to, the 0 or 10, then explain, "As a rule, we say that 5 is always closer to the higher number, 10." Place the title cards *Rounding Numbers* at the top of the pocket chart. Explain that we can round any number to the ones, tens, hundreds place, etc.

Count by tens aloud with the class. Place the cards *to the nearest ten* under the title *Rounding Numbers* in the pocket chart. Finally, place the words *up* and *down* in the next row of the pocket chart. Try an example together. Hold up the cards *3* and *6* to create the number *36*. Ask students to name the number, and name the tens which surround this number (30 and 40). Then ask, "Which ten is this number closer to: 30 or 40? When we round numbers, we look at the number in the place to the right of the digit we are rounding to. (In this case, we should look at the ones digit.) Is 6 less than 5, equal to 5, or more than 5?" When students determine that 6 is more than 5, and closer to 40, help them deduce that "36 rounds *up* to 40." Place the 36 under the *up* column on the pocket chart.

Pass out two number cards to students. Invite them to create a 2-digit number with the cards, and say it out loud to the class. Then ask them which two tens their number falls between. Finally, ask them to round their number to the nearest ten. (Remind them to look at the number in the ones digit to figure out which ten it is closer to.) Invite them to place the number under the column *up* or *down* in the pocket chart, and explain their reasoning to the class. Continue this activity with 3-digit numbers, rounding to the nearest one, ten or hundred. Remind students that when rounding to the nearest hundred, they'll look at the number in the tens column, not the ones column. Use the appropriate title cards where necessary.

Name _____

Activity 4

Rounding 3-digit Numbers

Directions: Look at the following numbers. Write the surrounding tens or hundreds on the lines outside the number. Then, round the number to the nearest ten or hundred by circling the number to which it would round. An example has been done for you.

Down		Up	Down		Up
(30)	**34**	**40**	**200**	**257**	**(300)**
___		___			___
	57			**569**	
___		___			___
	29			**982**	
___		___			___
	61			**310**	
___		___			___
	82			**704**	
___		___			___
	43			**666**	
___		___			___
	78			**470**	
___		___			___
	95			**821**	
___		___			___

Teaching Notes: Thousands, Ten Thousands, and Hundred Thousands

Cards needed:

Place Value Manipulative Cards:

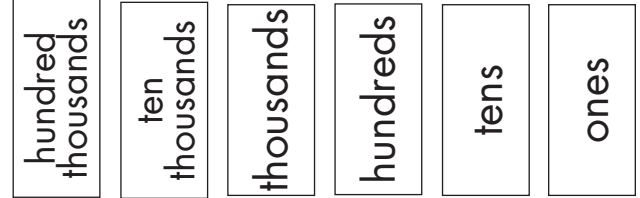| ones cube	tens rod	hundreds flat	thousands cube

green (☀)

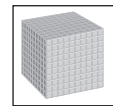| hundred thousands	ten thousands	thousands	hundreds	tens	ones

yellow (☀)

0 - 9 ,
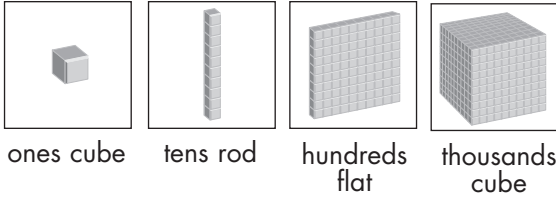
Presenting the concept:

Place the *hundreds, tens,* and *ones* cards vertically (as shown above) in the right-hand side of the top pocket of the pocket chart. Place ten ones cube cards under the *ones* column. Pointing to the *ones* column, review what students already know: 10 ones = 10. Remove the ten ones cubes and replace them with a tens rod in the tens column. Now add 9 more rods to that column, count them, and review that 10 tens = 100.

Remove the 10 rods, and replace them with a hundreds flat in the *hundreds* column. Now add nine more flats to this column and ask, "What do you think 10 hundreds equals?" Take all suggestions, then explain that 10 hundreds = 1,000. Place the thousands cube card in the pocket chart, to the left of the *hundreds* column.

—thousands cube

Show that this fourth column is called the *thousands* place, and when written in a number, it is separated from the ones, tens, and hundreds digits by a comma. Place a *comma* card between the *hundreds* and *thousands* title cards. Place a number like 1,567 under the correct headings in the pocket chart.

Add nine more thousands cubes to this column and ask, "What do you think 10 one thousands equals?" Take all suggestions, then explain,"10 one thousands = 10,000." Place the *ten thousands* title card to the left of the *thousands* card in the pocket chart. (Note: There is no manipulative card for 10 thousand, but there are 12 thousand cubes included in this book.)

Ask a bonus question: "Who can guess what 10 ten thousands equals?" Take all suggestions, leading students to understand that the answer is 100,000. Place the *hundred thousands* title card to the left of the *ten thousands* card in the pocket chart.

Place six different number cards (with a comma after the thousands) in the pocket chart under the place value titles, and ask students to identify, "What number is in the tens place?" Or ask, "What place is the 3 in?" This will reinforce what you've just taught. Try this with other numbers as well.

Name _____

Thousands and Ten Thousands

Directions: Answer the questions below.
Then fill in the missing digits based on the number's name.

Circle the digit
in the tens place.

135

546

7,892

432,985

Circle the digit in the
thousands place.

3,789

974,037

339,582

18,783

Circle the digit in the hundred
thousands place.

139,858

837,692

976,446

One hundred eighty-nine

1 ___ 9

One thousand, seven-hundred
sixty-one

1, ___ 61

Three thousand, eight hundred
forty-seven

___, ___ 47

Three-hundred thirteen
thousand, four hundred ninety-
nine

___ ___ ___, 499

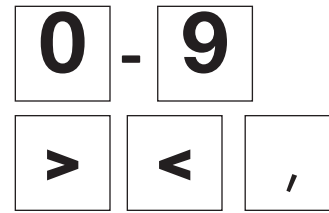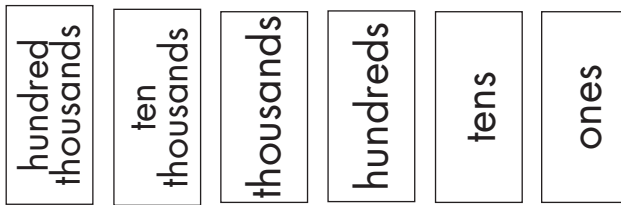Four hundred fifty-five thousand,
two hundred three

455, ___ ___ ___

One hundred twenty-three
thousand, four hundred fifty-six.

12___, 45___

Teaching Notes: Comparing and Ordering up to 5-Digit Numbers

Cards needed: green (☀)   yellow (☀)

hundred thousands	ten thousands	thousands	hundreds	tens	ones

0	-	9
>	<	,

Presenting the concept:

Be sure you have the place value headings in the correct order in the pocket chart. (Review Lesson 3 on *Comparing and Ordering 3-Digit Numbers* before presenting this lesson.) Build on that lesson by explaining, "We compare larger numbers in the same way that we compare smaller numbers." Stack two 4-digit numbers in the pocket chart under the correct place value headings. (3,467 and 3,754) Walk students through a comparison lesson again. "Start from the left and work toward the right, comparing similar place values. Both numbers have a 3 in the thousands place. Move to the right one digit. One number has a 4, and the other has a 7 in the hundreds place. We can compare these as 4 < 7. Therefore, 3,467 < 3,754." Walk students through two more problems using 5-digit and 6-digit numbers. Invite students to come up and place the > or < symbol with each problem in the pocket chart.

When you have finished displaying the three problems on the pocket chart, ask students to observe the symbols they've used in this lesson. Then, challenge them to put six numbers in the pocket chart in order from least to greatest. Ask them to share their reasoning, then invite them to list the numbers in a column on the pocket chart.

Follow-up activity:

Provide a comparing and ordering center challenge! With the pocket chart displayed in a center, place 4, 5, and 6-digit number pairs in the pocket chart for students to compare. Leave the < and > symbols nearby for children to place within each problem. When they have finished, challenge students to list all of the numbers on the pocket chart in order from greatest to least. Ask students to rearrange the numbers when they have finished, so the next person can try comparing a new set of numbers.

Name _____

Comparing and Ordering up to 5-Digit Numbers

Directions: Place < or > in the box. Then put the numbers in order below.

2,770 ☐ 3,077

5,678 ☐ 4,678

34,987 ☐ 34,879

91,919 ☐ 19,191

88,937 ☐ 86,937

129,083 ☐ 491,991

25,093 ☐ 255,093

304,982 ☐ 304,983

4,661 ☐ 4,663

8,201 ☐ 9,210

145,917 ☐ 145,971
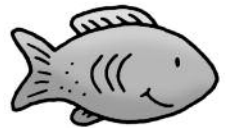
Label these numbers in order from least (A) to greatest (D).

___ 451,457

___ 44,598

___ 414,388

___ 4,589

Write these numbers in order from greatest (A) to least (D).
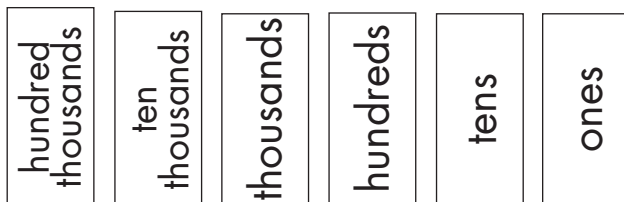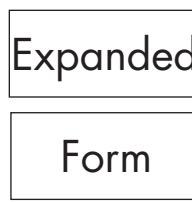
___ 321,231

___ 123,123

___ 132,321

___ 3,321

Teaching Notes: Expanded Form

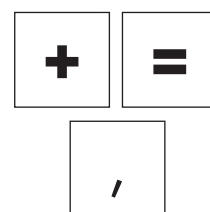## Cards needed: purple (☼), pink (☼), orange (☼), blue (☼)

green (☼) **red (☼)** **yellow (☼)**

| hundred thousands | ten thousands | thousands | hundreds | tens | ones |

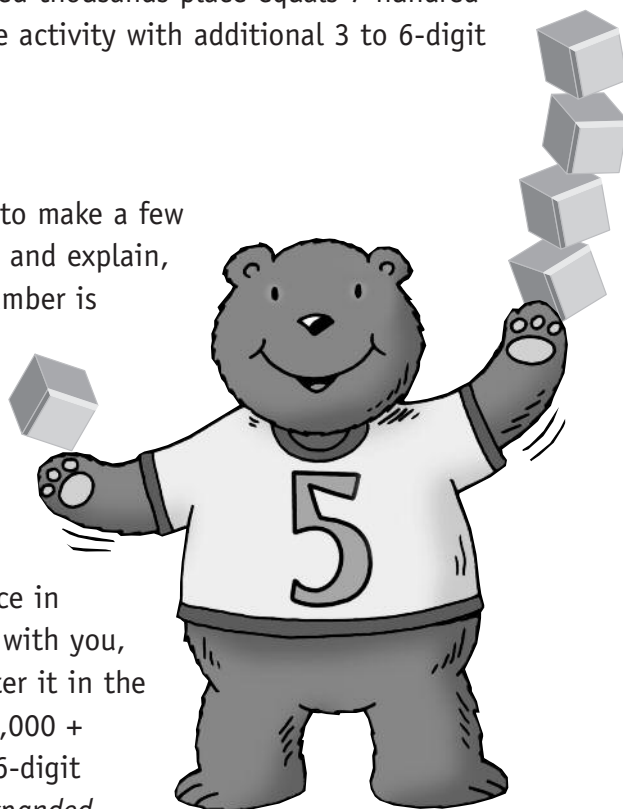| Expanded | | + | = |
| Form | | , | |

Presenting the concept:

Place the *Expanded Form* title cards in the center of the top pocket of the pocket chart. Underneath, put the place value headings (vertically, as shown) in the pocket chart. In the rows below the titles, place various 3- to 6-digit numbers with commas. (You may need to make additional comma cards for this activity.) Ask a volunteer to read the first number aloud (i.e., 345). Then ask, "Who can tell me what number is in the tens place and how much it alone is worth?" Explain that "A 4 in the tens digit is equal to 4 tens, or 40." Continue with the other numbers, exemplifying all the place values (A 3 in the hundreds place equals 3 hundreds, or 300. A 9 in the one thousands place is equal to 9 one thousands, or 9,000. A 5 in the ten thousands place equals 5 ten thousands, or 50,000. A 7 in the hundred thousands place equals 7 hundred thousands, or 700,000, etc.) Repeat the activity with additional 3 to 6-digit numbers.

Follow-up activity:

Put the number 44,444 (you may need to make a few additional 4 cards.) in the pocket chart and explain, "We can show how much a complete number is worth using expanded form. *Expanded Form* shows the sum of each digit's value in a number." Review the lesson above, that each digit in a number has its own value, depending on the place in which it falls. Ask students the value of the 4 in each place in this number. As they share the amount with you, place a card for each value with a + after it in the pocket chart. For example, 44,444 = 40,000 + 4,000 + 400 + 40 + 4. Give other 3 to 6-digit examples to reinforce the concept of *expanded form*. Then, invite students to do the activity on page 31 as a review of the lesson.

Name _____

Expanded Form

Directions: Draw a line matching the numbers to their expanded form.

1. 23,798

A. 70 + 2

2. 123,905

B. 400,000 + 50,000 + 5,000 + 900 + 80 + 2

3. 455,982

C. 20,000 + 3,000 + 700 + 90 + 8

4. 5,702

D. 600 + 7

5. 13,367

E. 100,000 + 20,000 + 3,000 + 900 + 5

6. 453

F. 5,000 + 700 + 2

7. 72

G. 10,000 + 3,000 + 300 + 60 + 7

8. 607

H. 400 + 50 + 3

Reading List

Even Steven & Odd Todd
Kathryn Cristaldi
Scholastic Inc, NY: 1996

How Much Is A Million?
David M. Schwartz
Morrow/Avon Books, NY: 1994

If You Made A Million
David M. Schwartz
Morrow/Avon Books, NY: 1994

The Magic of a Million
David M. Schwartz
Morrow/Avon Books, NY: 1998

Millions of Cats
Wanda Gag
The Putnam Publishing Group, NJ: 1928

Numbers
Publications International Ltd, IL: 1993

The Wolf's Chicken Stew
Keiko Kasza
Penguin Putnam Books for Young Readers, NJ: 1996

Zero! Is it Something?
Is It Nothing?
Claudia Zaslavsky
Franklin Watts, Inc, NY.: 1989

Place Value Manipulative Card Key:

ones cube	
tens rod	
hundreds flat	
thousands cube	

Cards-At-A-Glance

Cards are shown as front-to-back pairs.

3	0	10			100		1,000		10,000
6	7	20			200		2,000		20,000
9	4	30			300		3,000		30,000
0	1	40			400		4,000		40,000
2	0	50			500		5,000		50,000
8	5	60			600		6,000		60,000
7	4	70			700		7,000		70,000
0	1	80			800		8,000		80,000
1		90			900		9,000		90,000
2		0	,						
3		0	>						
4		0	<						
5		0	+						
6		0	=						
7									
8									
9									
0									

Rounding	Place	hundred	down
Numbers	even	to the	tens
nearest	ones	Expanded	hundred thousands
one	hundreds	digit?	one thousands
& Ordering	Value	Form	ten thousands
ten	up	Comparing	odd