

Before, After, and Between

before

Before means something that comes “in front of.”

Examples: Monday comes before Tuesday,
January comes before February, and
9 comes before 10.

after

After means something that comes “behind” or
“next.”

Examples: Saturday comes after Friday,
December comes after November, and
2 comes after 1.

between

Between means something that comes “in the
middle.”

Examples: Wednesday comes between Tuesday and
Thursday,
February comes between January and
March, and
11 comes between 10 and 12.

What is My Number?

Is the number before _____?

Is the number after _____?

Is the number between _____ and _____?

Is the number _____?

Directions for Numbers That Are Between

Player A:

1. Spin the spinner.
2. **Write** the number underneath Player A.

Player B:

1. Spin the spinner.
2. **Write** the number underneath Player B.

Then:

1. Work together with your partner to find a number that comes between.
2. When you agree, **write** the number in the Between column.
3. Spin again so that each player has had 10 turns.

Name _____

Date _____

Numerical Order

Write the numbers in order from least to greatest.

6 5 9 8 7 _____

15 12 11 13 14 _____

56 54 57 55 53 _____

38 42 41 40 39 _____

69 67 70 71 68 _____

20 10 40 30 50 _____

25 21 27 29 23 _____

62 42 52 72 32 _____

43 99 76 56 69 _____

62 75 3 87 26 _____

Answer Key
Obj. 3

Numerical Order

5, 6, 7, 8, 9

11, 12, 13, 14, 15

53, 54, 55, 56, 57

38, 39, 40, 41, 42

67, 68, 69, 70, 71

10, 20, 30, 40, 50

21, 23, 25, 27, 29

32, 42, 52, 62, 72

43, 56, 69, 76, 99

3, 26, 62, 75, 87

Numbers

<u>before</u>		<u>after</u>
<u>13</u>	14	<u>15</u>
<u>34</u>	35	<u>36</u>
<u>61</u>	62	<u>63</u>
<u>48</u>	49	<u>50</u>
<u>87</u>	88	<u>89</u>
<u>19</u>	20	<u>21</u>

<u>between</u>				
9,	<u>10</u> ,	11		
36,	<u>37</u> ,	38		
52,	<u>53</u> ,	54		
79,	<u>80</u> ,	81		
12,	<u>13</u> ,	<u>14</u> ,	<u>15</u> ,	16
47,	<u>48</u> ,	<u>49</u> ,	<u>50</u> ,	51
96,	<u>97</u> ,	<u>98</u> ,	<u>99</u> ,	100

Objective 4: Count, represent, group, and regroup numbers to 999. Read and write numbers to 999.

Vocabulary

flat
hundreds, tens, ones
more/less
before/after
greatest/least
win/lose
group
regroup

Materials

books to form 2 stacks
colored counters
index cards
base ten blocks
overhead pens (red, green, blue)
number cubes (red, green, blue)
3 x 5 index cards
More/Less Card Game game cards
Number Line More/Less Cards
on 5 x 8 index cards

Transparencies:

Hundreds Board
Place Value Board

Student Copies:

Before, After, and Between

Language Foundation

1. Write **more** on the overhead. Have the boys in the room stand up. Tell students that there are "more boys than girls in the class". (Reverse the last 2 sentences if there are more girls.) Put 2 stacks of books on a desk, one of which is visibly more than the other. Ask the students which stack has "more books". Put a row of colored counters on the overhead. Put a longer row beside it. Physically compare the two rows to see which has more. Ask the students to tell you which has more. If most of them have the concept, you can go on to less. If not, use additional examples. Write less on the overhead. Change the pile of books on the desk and indicate the pile containing less. Use additional examples with objects in the classroom.
2. This is an excellent opportunity to talk about the pairs of words in this lesson. Tell the students that they are called antonyms, or word opposites. Let students give other examples that they are familiar with.
3. Students may already be familiar with the terms **win/lose**. If not, relate them to a sports game that is in season, such as football, basketball, or soccer. Ask students to tell you some winners or losers of recent games. In this lesson, students are going to play a game. One person will win, and one will lose. Explain/model how that will happen before they play.

Mathematics Component

1. Distribute a set of base ten blocks and a place value board to each pair of students.
 - Write a number less than 100 on the overhead and ask students to form the number using tens and ones on their place value boards.
 - Have a student model a solution on the overhead using a transparency hundreds board.
 - Ask if anyone formed the number in a different way. (If any students have used 10 or more units to form the number, discuss how to regroup the blocks.) Practice forming several numbers less than 100 until students are comfortable with this procedure.
2. Have students hold up a **flat** as you display one on the overhead.
 - Ask them to look at the flat and tell you what they notice about this block. (It is made up of units, is 10 units across, is 10 units down, has 100 total units...)
 - Ask them to cover the flat with rods and then ask how many tens make a one hundred flat. Model this and elicit 10 tens make 1 hundred. Write 100 beside the flat.
 - Ask students to show 200 on their place value boards using only flats. Write 200 beside the flats.
 - Put 4 flats on the overhead and ask how many hundreds this is. (4) Write 400 beside the flats.
3. Using the Hundreds Board transparency , place 3 rods, and 2 units in the appropriate columns.
 - Ask students what number this represents. (32)
 - Record the number 32, along with the number word, in the recording box at the bottom of the place value board.
 - Clear the board and repeat this procedure using a flat, 2 rods, and 4 units.
 - Record this number as 124 at the bottom of the board.
 - Clear the board.
 - Record the following number at the bottom of the board: 1(hundred), 3(tens) and 6(ones).
 - Ask students to represent this number on their place value boards.
 - Have a student model the solution using place value blocks on the overhead.
 - Say the number and fill in the number word in the recording box.
 - Repeat this process with the following numbers.
 - * 2 hundreds, 3 tens, 4 ones
 - * 2 hundreds, 8 ones
 - * 3 hundreds, 5 tens, 2 ones
 - * 4 hundreds, 3 tens.

After students are comfortable with this procedure, write numbers such as 225 and 157 on the overhead and ask students to form and name the numbers. Have four students put their blocks together and form numbers such as 675 or 822.
4. Write a list of numbers between 1 and 999 on the board. To build oral language skills, have students work in pairs to read and then represent each number on a place value board.

5. Ask students to work in pairs. Tell them they are going to play a game with you.
- Have each pair of students use base ten blocks to represent 99 on their place value board.
 - Model on the overhead.
 - Draw the top card from the More/Less Card Game. (**Note:** A spinner may be used in place of the cards. It would need 7 sections labeled: 10 more, 10 less, 5 more, 5 less, 1 more, 1 less and STOP.)
 - If the card says “more”, show students how to add that number of blocks to their board as you do it on the overhead. If the card says “less”, show students how to remove that number of blocks from their boards. (Encourage the students to regroup ones for tens and tens for hundreds **whenever they can.**)
 - As you play, periodically ask students how many they have on their boards. (Review counting by tens and then counting on with the ones to name the number on their boards.)
 - Continue to play until you come to the “STOP” card. If you have more than 99 at that time, you win; if you have less than 99, you lose.

Play the game several times. Later, this game can be played by two students taking turns until the “STOP” card is reached. The student with more on his/her board at that time wins.

6. Relate the words “more” and “less” to numbers on a number line by taping the Number Line More/Less Cards along a number line which is posted in the room.

7. Write 357 in the recording box at the bottom of the Place Value Board transparency.
- Have students use base ten blocks to form this number on their place value boards.
 - Ask what number comes after 357. (358)
 - Explain to students that they can find this number by adding one more unit to their boards. Model this for them on the overhead. Write 358 after 357 at the bottom of the transparency.
 - Ask students to take off the extra unit so they again have 357, pointing to the number 357 as you model this.
 - Ask what number comes before 357. (356) Explain to students that they can find this number by removing one unit from their boards.
 - Write 356 before 357 at the bottom of the Place Value Board transparency.
 - Repeat this procedure with the number 129.
 - Give students copies of the Before, After and Between activity sheet to complete.

8. Note: This activity may be done using regular or colored number cubes. Directions for both follow.

Regular cubes:

Make three columns on the board as shown below:

hundred	ten	one

- Ask a student to roll 3 number cubes. Point to the 3 cubes and explain that you will use the 3 cubes to form a number and record it on the chart. Model randomly placing one digit in each of the columns, saying each place value name out loud.
- Model orally reading the 3 digit number
- Have a second student roll the 3 number cubes and have him/her help you form another 3-digit number by placing a digit in each of the three columns and recording it below the first number on the chart. If students are able, encourage them to read the number out loud.
- Repeat this procedure with a third student and record the number below the others.
- Ask students, "Which number is the **greatest**?" Remind them that **greatest** means the biggest number or the number with the most value.
- Using the concept of before and after, help students compare the numbers and write them in order from least to greatest. Lead them to see that you need to compare the hundred digit first, then if needed, the ten digit and finally, if needed, the one digit.
- Divide students into 3 groups. Explain that they will be working in groups to compare and order numbers.
- Give each group 3 number cubes and index cards. (one per student)
- Have one student in each group begin by rolling the 3 number cubes and recording a 3-digit number on one of the index cards.
- When each student has done this, tell them to pass the 3 number cubes to the next person in their group.
- Repeat the above procedure until every person has recorded a number on an index card.
- Tell students to work within their groups to arrange all of their index cards in order from least to greatest. (If students need to, they can use their place value boards.)
- When all the groups are done, have one student from each group read their numbers from least to greatest as you record them on the board.
- Discuss the results.

Colored cubes:

Note: If you have three different colored number cubes, using the same color for the hundred, ten, and one each time may help students remember place value.

- Make three columns on the board as shown below:

hundred (red)	ten (green)	one (blue)

- Point to the board as you tell students that red will be hundred, green will be ten, and blue will be one.
- Ask a student to roll the 3 number cubes. On the board, write the red number in the hundred column, the green number in the ten column, and the blue number in the one column. Ask the student to read the number providing assistance if needed.
- Have another student roll the number cubes. Record the new number below the first number in the same way and ask the student to read the number.
- Repeat this procedure with a third student and record the number below the other two.
- Ask students which number is the greatest. Remind them again what greatest means, if necessary.
- Using the concept of before and after, help students compare the numbers and write them in order from least to greatest. Lead them to see that you need to compare the hundred digit first, then if needed, the ten digit, then, if needed, the one digit.
- Divide students into 3 groups. Give each group a red, green, and blue number cube and index cards. (one per student)
- Have one student in each group roll the 3 cubes and record the number on his/her index card.
- When they are done, ask them to pass the cubes to the next person in their group.
- Repeat the same procedure passing the cubes and recording the numbers on an index card.
- When all the students have recorded a number, ask them to work within their groups to arrange all of their index cards in order from least to greatest. (If students need to, they may use their place value boards.)
- When all the groups are done, have one student from each group read their numbers from least to greatest while you record them on the board.
- Discuss the results.

More/Less Card Game

10 more	10 more	10 more
10 less	10 less	10 less
5 more	5 more	5 more

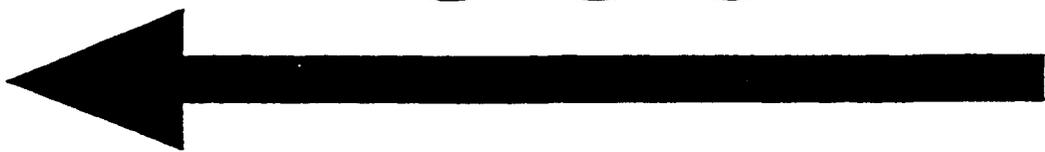
5 less	5 less	5 less
5 less	5 less	1 more
1 more	1 more	1 less

1 less	1 less	STOP
STOP		

More



Less



Before, After, and Between

Write the number that comes:

BEFORE

_____, 234 _____, 570 _____ 901, _____, 400

AFTER

538, _____ 426, _____ 229, _____ 799, _____

BEFORE AND AFTER

_____, 612, _____ _____, 280, _____ _____, 359, _____
_____, 500, _____ _____, 111, _____ _____, 799, _____

BETWEEN

455, _____, 457 739, _____, 741 299, _____, 301
858, _____, _____, 861 698, _____, _____, 701

Answer Key
Obj. 4

Before, After, and Between

Before

233, 234 569, 570 900, 901 399, 400

After

538, 539 426, 427 229, 230 799, 800

Before and After

611, 612, 613 279, 280, 281 358, 359, 360

499, 500, 501 110, 111, 112 798, 799, 800

Between

455, 456, 457 739, 740, 741 299, 300, 301

858, 859, 860, 861 698, 699, 700, 701

Objective 5: Compare and order numbers through 1000 using the symbols $>$, $<$, $=$.

Vocabulary

compare
greater than
less than
equal
open
closed

Materials

Comparison objects:
2 pieces of paper (different sizes)
yarn or string
books
cubes
3 x 5 cards marked $<$, $>$, $=$
Place Value Boards (TR)
number cubes
base 10 blocks

Transparencies:

Comparing Numbers

Student Copies:

Greater Than/Less Than
Number Review (pages 1-3)

Additional Activities materials

The Greater Number (student copies)

Language Foundation

1. This lesson begins with students listening to and writing numbers as you say them. This activity requires several skills including the ability to distinguish the pronunciation of the various number words, the ability to recall what those numbers look like, and the ability to write them. Listening, speaking, reading, and writing skills do not all develop at the same rate, especially for students whose literacy skills are just emerging. Students who are having difficulty with this task will eventually succeed. Take care to pronounce the numbers distinctly and to face the students as you say them. After a short pause, repeat the number. At the beginning, give the students plenty of time to respond, remembering that in addition to the steps required to write the number, they may also be translating the number into their first language mentally. (This skill needs to be practiced as often as possible using numbers of increasing complexity.)
2. Introduce the new terms **greater than** and **less than**. (The corresponding symbols will be taught in the lesson.) Explain that greater means larger, a bigger number; less meaning a smaller number. Use the number of letters in each term to show that greater than is longer than less than. Eleven letters is greater than eight letters. Eleven is *more* than eight.

Mathematics Component

Warmup

Strengthen listening and writing skills by having students write 8 numbers as you read them aloud. Explain that you will say a number and they are to listen carefully and write the number on their paper. (If you need to, model this on the overhead.) Use a range of numbers such as 12, 46, 8, 77, 13, 150, 489, and 666. Have the students check their numbers as you write them on the overhead. (Optional: If students' English proficiency skills are fairly strong, students can practice writing number words along with the numbers.)

1. Tell students that they are going to learn another way to write "more" and "less." Select 3 or 4 concrete groups of items from around the room. Examples might include:
 - * 2 pieces of paper whose areas are obviously very different
 - * 2 pieces of yarn or string cut to very different lengths
 - * 2 stacks of books that are different in number
 - * 2 piles of multilink or other cubes, one with a much larger amount than the other.
 - As the students discuss which is "greater," place a 3 x 5 card with the correct sign (< or >) between the two, saying "___ is greater than ___" or "___ is less than ___."
 - When you have finished each of the concrete examples, hold up the two cards and ask students to tell what they notice about the two symbols.
 - Lead them to understand that the **open** part of the symbol (point to the open part as you say this and reinforce the word open)) goes towards the greater number. The **closed** part of the symbol (point to the closed part as you say this and reinforce the word closed) points toward the lesser number. Remove all of the cards from between the concrete objects and see if the students can help you place them correctly between each of the examples, discussing why each card is chosen as you do so.
2. Pass out a place value board and base-ten blocks to each student. Choose two students to model the procedure for this activity and give each student a number cube.
 - Have one of the two students roll the number cube and place that number of unit cubes on their place value board.
 - Ask the same student to roll the number cube again and place that number of rods on their place value board.
 - Have the student read the number shown on their place value board as you record the number on the chalk board.
 - Ask the second student to roll the number cube and place that number of units on his/her board.
 - Have him/her roll the number cube again and place that number of rods on the board.
 - Ask the student to read the number on his/her place value board as you record it beside the first

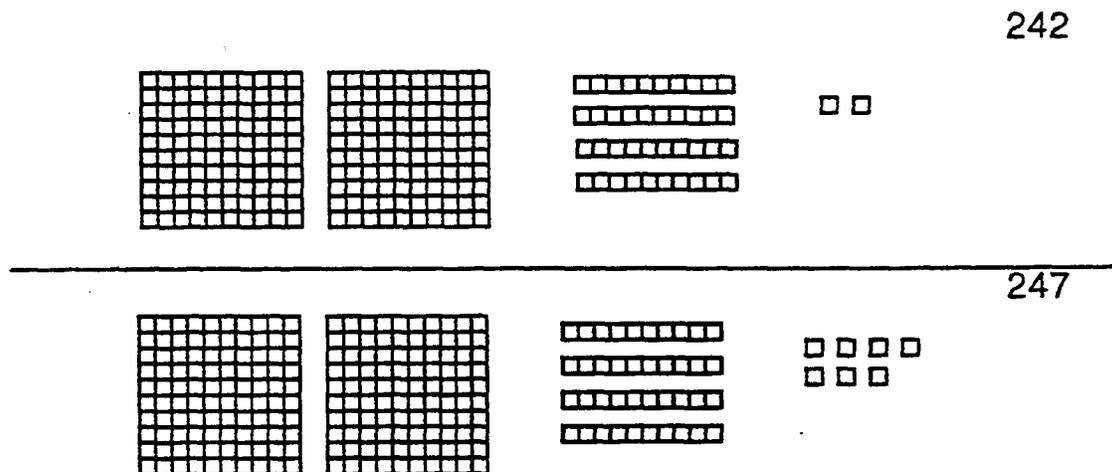
number on the chalk board.

- Ask the students which number is greater. Model comparing the two numbers and placing the correct sign (< or >) between the two. Read the number sentence out loud, emphasizing the words **greater than** or **less than**.

Tell students that they will now work with a partner to compare their own numbers. Place the transparency Comparing Numbers on the overhead. Review the directions out loud with students. When they have finished, go around the room to each pair of students and ask them to read what they have written as you record it on the chalk board. Repeat this activity until students are comfortable with reading and writing these symbols.

Place two groups of 6 units each on the overhead. Ask the students which is greater. Elicit that they are the same. Write $6 = 6$ on the overhead between the two groups of blocks. Explain that when two numbers are the same, we say they are **equal** and use this sign ($=$). Say "Equal means that what is on the left side of the sign is the same as, or equal to, what is on the right side of the sign." Place two sets of 9 cubes on the overhead and ask a student to come up and write a number sentence comparing the two. Elicit $9 = 9$.

Put 242 base-ten blocks on the overhead. Place 247 blocks below the first group as shown below.



Count the blocks and write the number beside each group of blocks. As you point to the two groups say, "We will compare the blocks."

- Point to the two groups of flats and say, " $200 = 200$."
- Point to the two groups of rods and say, " $40 = 40$."
- Point to the two groups of units and say, "Which is **greater**?" Write and say, " $7 > 2$."
- Point and remind students of the flats and rods which are equal or the same in value. Then explain that the number with 2 units is **less than** the other. Write $242 < 247$.
- Repeat this procedure with 176 and 156.
- Write several pairs of numbers and ask students to help you compare them.

The Greater Than/Less Than activity may be used as a class assignment or as homework.

5. Write $245 > 126$ on the overhead. Ask students to read the number sentence. Then, write $126 \underline{\quad} 245$ beside the first number sentence. Ask students to compare the two numbers by placing the correct sign between the two. Discuss which sign should be used. ($126 < 245$) Lead students to understand that the order of the numbers does not matter; however, the open part of the symbol must go toward the greater number. Emphasize the difference in reading each of the two number sentences as you say, " is greater than ," and " is less than ."
6. A review activity, Number Review, is provided for student practice. (**Note:** You may want to decide whether to include page 3 of the review, depending on the students' English language proficiency.) It may be used as a class assignment or given to students to complete at home. The activity incorporates concepts taught in objectives 2 - 6. Discuss answers together as a group to give students an opportunity to develop oral language and to further clarify concepts they do not understand.

Additional Activities for Objective 5

Greater Than/Less Than Games

- Game 1:** Form groups of two to four students and give each group three number cubes.
- Have each group select one student to roll the three cubes.
 - Students work together to write down all of the possible number combinations using those three digits. (For example, if the numbers rolled were 3, 2, and 5, students would write 532, 523, 352, 325, 235, 253.)
 - Students decide which number is the **greatest** and which is the **least**.
 - They use those two numbers to write a number sentence comparing the numbers. (For the example given above, they could write $235 < 532$ or $532 > 235$.)
 - The student who rolled the number cubes then reads the number sentence out loud or chooses someone else in their group to read it. (As English language proficiency develops, it is important to encourage students to talk.)

Variation 1: If students need further concrete representation, ask them to form the numbers with base 10 blocks before comparing them.

Variation 2: Ask students to put all six of the numbers in order from least to greatest or greatest to least.

Variation 3: This version of the game requires students to keep track of the score and a **winner** will be declared at the end of a given time. Each student rolls the three number cubes and writes down a number using all three digits. The students then compare the numbers and decide who has the greatest number. He or she scores one point. The game continues for a given amount of time, and the student with the most points at the end is declared the winner.

Variation 4: This version of the game is the same as Variation 3 except that students try to form the least number possible instead of the greatest.

- Game 2:** Students work in pairs or in groups of three, using three number cubes, to make numbers that increase in size. (Modeling this game first will make it easier for students to understand the strategies involved in making numbers that increase in size.)
- The first student rolls the number cubes and tries to make the least three digit number possible and records this number.

- The next student rolls the number cubes and records the least number possible **which is greater than the first number.**
- Play continues until all students agree that it is not possible to form a number greater than the previous one.
- The group who is able to make the longest sequence is the winner.
- Work with students to write a continuous string of numbers which compares the longest sequence. (For example, $124 < 345 < 378 < 477 < 528 < 581 < 606$.)

Variation 1: The game can also be played starting with the greatest number and making numbers that are less than the previous one.

Game 3: Give each student an activity sheet, The Greater Number, and each pair of students a number cube.

- The first student rolls the number cube and assigns a place value to the number by writing the number on their recording sheet under one of the columns labeled either H (Hundreds), T (Tens) , or O (Ones). **Note:** Students may choose the column to put each number in; however, they are not allowed to change the place value assignment of a number once it has been recorded on their sheet! Each number must go in a different column. (For example: Student 1 rolls a 4 and places it in the T (tens) column, a 1 and places it in the O (ones) column, and a 3 and places it in the H (hundreds) column. His/her number is 341.)
- The next student then rolls the number cube three times, writing a digit on the recording sheet each time they roll.
- The student with the greater number scores one point.
- Play continues for a given amount of time, with students recording each number below the previous one on their recording sheet and scoring one point each time they write the greater number.
- The winner is the student with the most points at the end of the game.

Game 4: Distribute 2 number cubes to each pair of students. Student 1 rolls the cubes, adds the two numbers together, and records this number. Student 2 rolls the cubes, adds the two numbers, and records his/her number. The student with the greater **sum** scores one point. Play continues for a given amount of time and the winner is the student with the most total points.

Variation 1: Play as above except the student with the least sum will score a point each time.

COMPARING NUMBERS

The first student:

1. Roll the number cube.
2. Place that number of units on your place value board.
3. Roll the number cube again.
4. Place that number of rods on your place value board.
5. Record the number.

The second student:

1. Roll the number cube.
2. Place that number of units on your place value board.
3. Roll the number cube again.
4. Place that number of rods on your place value board.
5. Record the number.

Then:

1. Work together.
2. Write the two numbers.
3. Compare them by writing $<$ or $>$ between the numbers.

Greater Than/Less Than

Examples:

$3 < 6$
3 is less than 6

$9 > 4$
9 is greater than 4

Compare the two numbers. Write $>$ or $<$ in each \bigcirc .

1. 13 \bigcirc 19

10. 100 \bigcirc 200

2. 4 \bigcirc 5

11. 240 \bigcirc 250

3. 3 \bigcirc 2

12. 65 \bigcirc 56

4. 67 \bigcirc 63

13. 919 \bigcirc 719

5. 92 \bigcirc 98

14. 340 \bigcirc 280

6. 29 \bigcirc 30

15. 38 \bigcirc 42

7. 29 \bigcirc 28

16. 268 \bigcirc 264

8. 13 \bigcirc 15

17. 972 \bigcirc 971

9. 65 \bigcirc 56

18. 7982 \bigcirc 7993

Write your own.

19. $\underline{\quad}$ \bigcirc $\underline{\quad}$

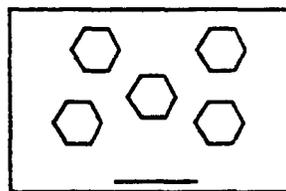
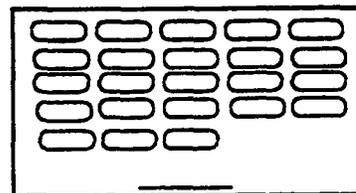
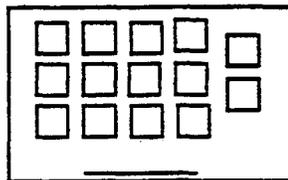
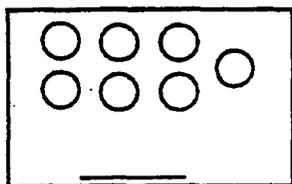
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Number Review

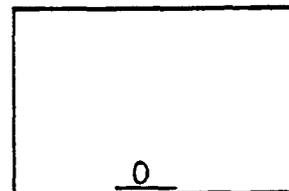
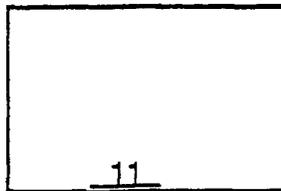
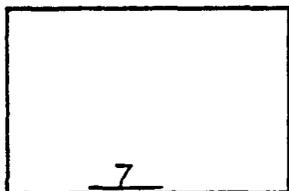
Match the number and the number word.

- | | |
|--------|------------------------|
| 1) 4 | fifty |
| 2) 9 | twenty-seven |
| 3) 27 | nine |
| 4) 66 | two hundred five |
| 5) 50 | sixty-six |
| 6) 132 | one hundred thirty-two |
| 7) 205 | four |

Count the shapes in each rectangle. Write the number on the line.



Read the number in each rectangle. Draw the shapes for the number in each rectangle..



Number Review

Write the correct number.

- 1) 3 hundreds, 6 tens, 3 ones = _____
- 2) 1 hundred, 4 tens, 9 ones = _____
- 3) 5 hundreds, 8 ones = _____
- 4) 7 tens, 2 ones = _____
- 5) 6 hundreds, 4 ones = _____

Regroup each number.

- 1) 17 ones = _____ ten, _____ ones
- 2) 20 ones = _____ tens, _____ ones
- 3) 11 ones = _____ ten, _____ one
- 4) 326 ones = _____ hundreds, _____ tens, _____ ones

Write the number before.

- 1) _____, 12
- 2) _____, 19
- 3) _____, 1
- 4) _____, 61
- 5) _____, 200

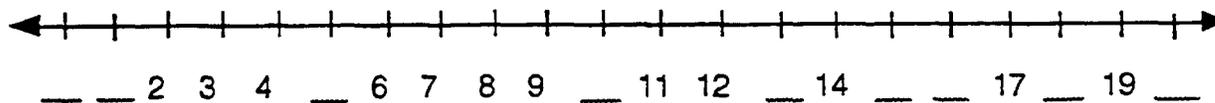
Write the number after.

- 1) 24, _____
- 2) 39, _____
- 3) 99, _____
- 4) 149, _____
- 5) 399, _____

Write the number between.

- | | | |
|--------------------|--------------------|--------------------|
| 1) 9, _____, 11 | 2) 38, _____, 40 | 3) 107, _____, 109 |
| 4) 249, _____, 251 | 5) 499, _____, 501 | 6) 64, _____, 66 |

Write the missing numbers on the line.



Compare the numbers. Write $>$, $<$, or $=$ in the \bigcirc .

- | | | |
|---------------------|---------------------|-----------------------|
| 1) 7 \bigcirc 17 | 2) 86 \bigcirc 39 | 3) 125 \bigcirc 152 |
| 4) 69 \bigcirc 16 | 5) 3 \bigcirc 13 | 6) 548 \bigcirc 49 |

Number Review

WORD BANK				
zero	seven	fourteen	ten	eighty
one	eight	fifteen	twenty	ninety
two	nine	sixteen	thirty	
three	ten	seventeen	forty	
four	eleven	eighteen	fifty	
five	twelve	nineteen	sixty	
six	thirteen	twenty	seventy	

Write the number word for each. Use the word bank for help.

- | | |
|--------------------------------------|-----------|
| 1) 7 _____ | 2) _____ |
| 3) 13 _____ | 4) _____ |
| 5) 2 _____ | 6) _____ |
| 7) 31 _____ | 8) _____ |
| 9) 150 _____ | 10) _____ |
| 11) 6 hundreds, 6 tens, 8 ones _____ | |
| 12) 9 tens _____ | |
| 13) 4 hundreds, 3 ones _____ | |
| 14) 5 hundreds, 7 tens _____ | |
| 15) 6 tens, 9 ones _____ | |
| 16) 10 more than 50 _____ | |
| 17) 5 more than 13 _____ | |
| 18) 10 less than 89 _____ | |

Name _____

The Greater Number

H (Hundred)	T (Ten)	O (One)

Answer Key Obj. 5

Greater Than/Less Than

- | | | | | | | | |
|----|----|---|----|-----|------|---|------|
| 1. | 13 | < | 19 | 10. | 100 | < | 200 |
| 2. | 4 | < | 5 | 11. | 240 | < | 250 |
| 3. | 3 | > | 2 | 12. | 65 | > | 56 |
| 4. | 67 | > | 63 | 13. | 919 | > | 719 |
| 5. | 92 | < | 98 | 14. | 340 | > | 280 |
| 6. | 29 | < | 30 | 15. | 38 | < | 142 |
| 7. | 29 | > | 28 | 16. | 268 | > | 264 |
| 8. | 13 | < | 15 | 17. | 972 | > | 971 |
| 9. | 65 | > | 56 | 18. | 7982 | < | 7993 |

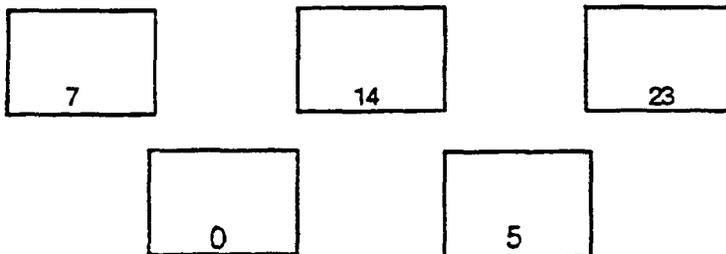
Answers for numbers 19 and 20 will vary.

Number Review

Match the number and the number word.

- | | | |
|----|-----|------------------------|
| 1) | 4 | fifty |
| 2) | 9 | twenty-seven |
| 3) | 27 | nine |
| 4) | 66 | two hundred five |
| 5) | 50 | sixty-six |
| 6) | 132 | one hundred thirty-two |
| 7) | 205 | four |

Count the shapes in each rectangle. Write the number on the line.



Read the number in each rectangle. Draw the shapes for the number in each rectangle.

The number of figures drawn should match the number in each box (7, 11, and 0).

Write the correct number.

- 3 hundreds, 6 tens, 3 ones = 363
- 1 hundred, 4 tens, 9 ones = 149
- 5 hundreds, 8 ones = 508
- 7 tens, 2 ones = 72
- 6 hundreds, 4 ones = 604

Regroup each number.

- 1) 17 ones = 1 ten, 7 ones
- 2) 20 ones = 2 tens, 0 ones
- 3) 11 ones = 1 ten, 1 one
- 4) 326 ones = 3 hundreds, 2 tens, 6 ones

Write the number before.

- 1) 11, 12
- 2) 18, 19
- 3) 0, 1
- 4) 60, 61
- 5) 199, 200

Write the number after.

- 1) 24, 25
- 2) 39, 40
- 3) 99, 100
- 4) 149, 150
- 5) 399, 400

Write the number between.

- 1) 9, 10, 11
- 2) 38, 39, 40
- 3) 107, 108, 109
- 4) 249, 250, 251
- 5) 499, 500, 501
- 6) 64, 65, 66

Write the missing numbers on the line.

The number line should be filled in with the numbers 0-20 in order.

Compare the numbers. Write >, <, or = in the \bigcirc .

- 1) 7 < 17
- 2) 86 > 39
- 3) 125 < 152
- 4) 69 > 16
- 5) 3 < 13
- 6) 548 > 49

Write the number word for each. Use the word bank to help.

- 1) 7 seven
- 2) 88 eighty-eight
- 3) 13 thirteen
- 4) 0 zero
- 5) 2 two
- 6) 19 nineteen
- 7) 31 thirty-one
- 8) 69 sixty-nine
- 9) 150 one hundred fifty
- 10) 314 three hundred fourteen
- 11) 6 hundreds, 6 tens, 8 ones six hundred sixty-eight
- 12) 9 tens ninety
- 13) 4 hundreds, 3 ones four hundred three
- 14) 5 hundreds, 7 tens five hundred seventy
- 15) six tens, 9 ones sixty-nine
- 16) 10 more than 50 sixty
- 17) 5 more than 13 eighteen
- 18) 10 less than 89 seventy-nine

Objective 6: Explain the relationship among place values of numbers up to one billion. Read and write whole numbers to one billion.

Vocabulary

digits
ones (1s)
tens (10s)
hundreds (100s)
thousands (1000s)
million
billion
value
column
regroup
greater than
comma

Materials

index cards
base ten blocks
Place Value Boards (TR)
Place Value Wall Posters 1 - 4

Transparencies:

Place Value Board
Place Value Chart A
Place Value Chart B
Reading Numbers
Writing Number Words

Student Copies:

Place Value Chart B
Reading Numbers
Writing Number Words

Optional

Place Value Practice
student copies

Language Foundation

1. Explain that **digit** is another word for a number. In large numbers, each individual number is called a digit. For example, put the number 34 on the board. Tell students that 34 contains two digits: 3 and 4. Do the same with three digit numbers, four digit numbers, and so on.
2. Write the symbol for the **comma** on the board. Tell students that it is used to separate words. Show this example on the board: "The children will use pencils, crayons, and paper in class today." Ask how it is used by students from other cultures. (Some students may use it as a decimal point.) Now explain that the comma is also used to separate numbers. Write this number on the board: 3,456,789. In this lesson, students will use a comma to separate groups of numbers.
3. If students are having difficulty understanding the term **value**, use the words "how much" when you use this term until students get used to it.

Mathematics Component

This objective will take more than one day to complete.

1. Discuss with students what they already know about place value. Ask questions such as:
 - How many different **digits** are there? (10 digits, 0 - 9)
 - With only this many digits, how can we name so many different numbers? (Help students verbalize the fact that we combine numbers by using place value.)
 - How is the “6” in the number 65 different from the “6” in the number 16? (The value of “6” in 65 is **60**, in 16 its value is only **6**.)

2. **Review:**
 - Distribute place value boards (TR) and base ten blocks to each pair of students.
 - Using the Place Value Board transparency, point to the places designated as one, ten, and hundred. Review that each of these columns has a special value.
 - Point to the one column and say, “Remember that this is a special place just for ones.” Ask students to use their base ten blocks to show you “one.”
 - Students should have placed 1 unit on their boards. Ask, “What is the value of the unit?” (1)
 - Point to the ten column and remind students that only rods or tens may be placed in this column
 - Have students put nine more units on their boards. Ask what the total value is. (10)
 - Remind students that as soon as we have 10 units, we **regroup** them into rods. Ask students to regroup and place a rod onto their boards, removing the 10 units, as you do the same on the transparency.
 - Ask what the value is now. (The value is still 10, they have just regrouped.)

Then:

 - Hold up a unit cube and a rod and ask, “How much **greater** is the ten than the one?” Elicit that the rod is **10 times greater** than the unit. Model this on the overhead by placing 10 units beside the rod. Point and say, “The tens are 10 times greater than the ones.”
 - Have students place nine more rods onto their boards. Ask students to name the value. (100)
 - Point and say, “The third column is the hundred.” Ask students what can be placed in the hundred column. (100s or flats)
 - On the transparency, model regrouping the ten rods for a flat and have students do the same on their boards. Ask students to name the value. (It is still 100 since all you have done is regroup.)
 - Hold up a rod and a flat and ask, “How much **greater** is the flat than the rod? Elicit that the flat is 10 times greater than the rod. Model this on the overhead by placing ten rods on top of the flat. Point and say, “The hundreds are **10 times greater** than the tens.”

Lead students to verbalize how the columns are related to each other by asking the following questions:

- How many 1s would you need to regroup and make ten? (10)
- How many 10s would you need to regroup and make one hundred? (10 because ten rods with 10 on each one is equal to 100.)
- What do you notice about each column as you move to the left? (Starting with the “ones,” each column moving to the left is ten times greater than the previous one.)

3. Tell students that numbers work together in groups and some place value columns have special **group names**. Put Place Value Chart A (TR) on the overhead and review the location of the one, ten, and hundred. Trim the laminated Place Value Wall Poster (4) along the dotted lines and tape it up on the wall, pointing out the three place value columns. (**Note:** Leave room to tape three other pieces to the left of this piece later.)

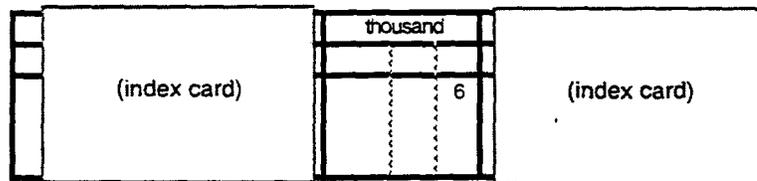
- On the transparency, point to the next group of numbers and say, “**Thousand** is the group name for the numbers in these three places.” Write the word thousand as shown below.

<i>thousand</i>					
<i>hundred</i>	<i>ten</i>	<i>one</i>	hundred 100	ten 10	one 1

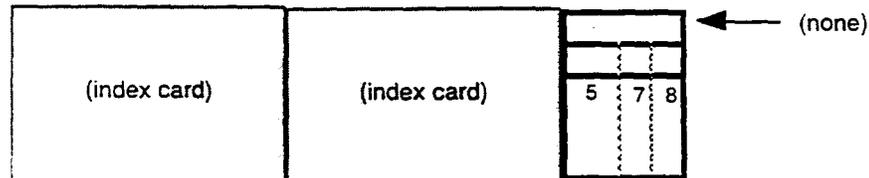
- Point and say, “First there is one thousand.” Write the word “**one**” in the one thousand column as shown.
- Point to the ten thousand column and say, “Next there is ten thousand.” Write the word “**ten**” in this column as shown above.
- Point to the hundred thousand column and say, “Then there is hundred thousand.” Write the word “**hundred**” in the hundred thousand column as shown above.
- Ask students what they notice about the thousand group and the first group as you point to both. (One, ten, hundred repeats in both groups.)
- Trim the laminated Place Value Wall Poster (3) (TR) along the dotted lines, tape it on the wall to the left of the first wall poster and review the **thousand** group.
- On the transparency, point to the next group of numbers and say, “This group is million.” Write the word “**million**” above this group.
- Explain that there are also 3 columns in this group. Ask what students think these columns are named. (Check for understanding of one, ten, hundred repeating.) Point to each of the three columns as you write “**one**,” “**ten**,” and “**hundred**” above each one.

- Trim the laminated Place Value Wall Poster (2) (TR) along the dotted lines, tape it to the wall to the left of the other two wall posters and review the **million** group.
 - Using the transparency, repeat this procedure for the **billion** group and then tape the laminated Place Value Wall Poster (1) (TR) to the left of the others and review this group.
4. Continuing on the same transparency place value board as above, go back and review each of the columns in the first group. Then, point to the the thousand group.
- Point to and name the **one thousand** column. Use a transparency marker to fill in the number (1,000) below the word as you say, "This is how we write the number 1,000. Only one thousand can be placed here."
 - Point to and review that the tens are **10 times greater** than the ones.
 - Point to the hundred and remind students that the hundreds are **10 times greater** than the tens.
 - Say, "If this continues in the same way, how much greater is one thousand than one hundred? (**10 times greater**) Model using 10 hundreds flats and stacking one on top of the other to make 1,000.
 - Point to the **ten thousand** column and fill in the number (10,000) below the word as you say, "This is how we write the number 10,000. Only ten thousands can be placed here."
 - Say, "How much greater is ten thousand than one thousand?" (**10 times greater**) Explain that it would take 10 of these 1,000s to make ten thousand.
 - Point to the **hundred thousand** column and write the number 100,000 in the appropriate column.
 - Ask students how much greater one hundred thousand is than ten thousand. (**10 times greater**)
 - Discuss what students have learned about the thousands family. (It includes ones, tens, and hundreds. Each place, moving to the left, is 10 times greater than the one before it.)
 - Continue in the same manner, discussing and filling in place value numbers through billions on the transparency and the wall chart. See Place Value Chart B, (TR) for a completed sample.
 - Elicit an understanding that:
 - * Digits have value according to where they are placed in a number.
 - * Groups of three numbers have group names.
 - * Each group of numbers includes ones, tens and hundreds.
5. Distribute individual copies of Place Value Chart (B) (TR). Using a transparency copy of Place Value Chart (A) (TR), orally review the names and corresponding numbers of the first three place value columns. (one, ten, hundred) Beginning with the one thousand column, have students say and copy the name and corresponding number for each of the remaining columns onto their own papers. This chart may be placed in student notebooks for review and reinforcement of place value language.

6. Explain to students that group names make it easier to read large numbers. Place a transparency copy of Place Value Chart (B) (TR) on the overhead. Write 375 on the board and say, "How many?" (Students should be able to respond orally based on previous objectives.)
- Write 6, 578 on the board. Say, "How many?" (Some students may be able to read the number; other students will need a little more practice.)
 - Say, "We can use a place value chart to help read this number."
 - Ask students to help you place each digit into the appropriate column on the place value chart. (Appropriate placement is: 6 under **one thousand**, 5 under **hundred**, 7 under **ten**, and 8 under **one**.)
 - Tell students that when we read numbers, we name each "group" of numbers starting from the left. (Use two index cards to **cover all groups to the right and left of thousand**. Each "group" of numbers will be shown separately.)



- Point first to the 6 and say "How many?" (6) Then to the word thousand as you say, "What group?" (thousand)
- "We say 6 **thousand**..." (Now move the index cards over and **cover all but the one, ten, and hundred columns**.)
- Continue naming the number by saying, "How many?" (578) Point and say, "What group?" (**none**)



- Repeat the number without the cards pointing and orally reading the number as "six **thousand**, five hundred seventy-eight."
- Practice reading a greater number by cleaning off the transparency and writing the number 34,589 on the board.
- Place each new digit into the appropriate column on the place value board.
- Begin reading by covering all groups except thousand and ask students "How many?" (**34**) and "What family?" (**thousand**).
- Then show only the first group and ask "How many?" (**589**) (Remind students that we do not name a family here.)
- Practice reading several other numbers in the thousands.

- Then write 64, 328, 517 on the board.
- Cover all families **except** million and ask, “How many?” (64) and “What family?” (million).

billion		million		(index card)	(index card)
		6	4		

- Cover all families **except** thousand and repeat, “How many?” (328) and “What family?” (thousand)

(index card)	thousand			(index card)
	3	2	8	

- Cover all **except** the first group and repeat the same questions. (517 - no group name)

(index card)	(index card)				(none)
		5	1	7	

- Uncover and read the complete number.
- Practice naming numbers through billion. Be sure to repeat each number several times with students.

The laminated place value chart may be used for review /reinforcement. Take a few minutes to practice reading one or two numbers as often as possible, wiping off the chart after each use.

7. Copy the following list onto the board as shown below. Review the name of each group through billion.

Group Names			
billion	million	thousand	(none given)

Give each pair of students a copy of the Reading Numbers activity sheet.

- Using a transparency of the activity sheet, read the first two numbers together as a group.
- For the third number (4,860) point out that each group is divided by a comma. Explain that the commas separate the groups of numbers..
- Model how to locate the group farthest to the left.

- Read the number within the group (4) and say **thousand**.
- Move to the next group and read the number (860) reminding students that a group name is not given here.
- Do Practice A from the activity sheet out loud together.
- Follow up with Practice B and C at an appropriate time.

(NOTE: **Discourage** students from using the word “and” as they read numbers. For example, many students want to say “four thousand **and** eight hundred **and** sixty” when it should be read “four thousand, eight hundred sixty.”)

7. Pass out copies of Writing Number Words. Explain to students that reading numbers out loud can help us write the words. Using a transparency copy of the activity, ask a student to read the first number in Practice A as you model writing the word beside the number on the transparency. (See the answer key following this lesson.) As you model writing several numbers, point out when to place a comma between group words. Have students complete the activity, working with a partner. Practice B can be done for homework or saved for another time.

Optional: Place Value Practice may be assigned depending on students' English language proficiency.

Place Value Wall Poster (4)

	one	
	ten	
	hundred	

thousand		
hundred	ten	one

million		
hundred	ten	one

billion	one	
	ten	
	hundred	

Reading Numbers

Read each number.

<u>Group Names</u>			
billion	million	thousand	no name

Remember to:

- 1) Start with the group on the left.
- 2) Say the number in the group.
- 3) Say the group name.
- 4) Move to the next group.
- 5) Continue until you have named each group.

Practice A

- | | |
|----------|-----------|
| 1) 13 | 8) 999 |
| 2) 249 | 9) 76 |
| 3) 4,860 | 10) 701 |
| 4) 1,206 | 11) 38 |
| 5) 52 | 12) 760 |
| 6) 317 | 13) 762 |
| 7) 9,034 | 14) 5,033 |

Practice B

- | | |
|------------|-----------------|
| 1) 4,268 | 6) 2,478,310 |
| 2) 17,040 | 7) 4,000,208 |
| 3) 399,100 | 8) 30,004 |
| 4) 5,390 | 9) 156,397,487 |
| 5) 1,002 | 10) 190,467,211 |

Practice C

- | | |
|---------------|---------------------------------------|
| 1) 5,000,449 | 6) 127,389,211 |
| 2) 37,050,340 | 7) 9,243,501,228 |
| 3) 2,358,700 | 8) 19,000,237,702 |
| 4) 876,140 | 9) 776,200,005,621 |
| 5) 7,999,100 | 10) Write a number here you can read. |

Writing Number Words

Write each number using words.

- Remember:**
- 1) Say the word.
 - 2) Write the words.
 - 3) Put a comma between each group.

Practice A

Number Words

1) 39

2) 247

3) 99

4) 402

5) 1,000

6) 666

7) 8,003

8) 9,060

Practice B

1) 2,000,146

2) 50,608,300

3) 352,800,538,000

4) 16,500,000

5) 6,000,000,572

6) 298,537,110,036

7) 109,336,529,654

Place Value Practice

Circle the number which matches each word name.

Example: five thousand, five hundred twenty six

- a. 5,500,026 b. 50,526
c. 5,026 d. 5,526

- 1) seven hundred nineteen 2) four hundred six
a. 700,019 b. 7,090 a. 460 b. 406
c. 719 d. 790 c. 400,006 d. 4,060
- 3) sixty thousand, twelve 4) twenty million
a. 60,012 b. 16,012 a. 2,000,000 b. 20,000
c. 6,120 d. 16,020 c. 20,000,000 d. 200,000
- 5) eighteen thousand, seven hundred thirty one
a. 8,700,031 b. 8,731 c. 18,713 d. 18,731
- 6) five hundred fifty million, six hundred seven thousand, one hundred
a. 500,617,100 b. 550,607,100 c. 550,607,731 d. 550,712
- 7) three billion, four hundred thousand, eight hundred nine
a. 3,400,890 b. 3,400,809 c. 3,000,489 d. 3,000,400,809
- 8) fifty thousand, six hundred nineteen
a. 50,690 b. 5,619 c. 500,609 d. 50,619

Answer Key
Obj. 6

Writing Number Words

Practice A:

- 1) 39 thirty-nine
- 2) 247 two hundred forty-seven
- 3) 99 ninety-nine
- 4) 402 four hundred two
- 5) 1,000 one thousand
- 6) 666 six hundred sixty-six
- 7) 8, 003 eight thousand, three
- 8) 9, 060 nine thousand, sixty

Practice B

- 1) 2,000,146 two million, one hundred forty-six
- 2) 50, 608, 300 fifty million, six hundred eight thousand, three hundred
- 3) 352, 800, 538, 000 three hundred fifty-two billion, eight hundred million, five hundred thirty-eight thousand
- 4) 16, 500, 000 sixteen million, five hundred thousand
- 5) 6,000,000, 572 six billion, five hundred seventy-two
- 6) 298, 537, 110, 036 two hundred ninety-eight billion, five hundred thirty-seven million, one hundred ten thousand, thirty-six
- 7) 109, 336, 529, 654 one hundred nine billion, three hundred thirty-six million, five hundred twenty-nine thousand, six hundred fifty-four

Place Value Practice

1. c. 2. b.
3. a. 4. c.
5. c.
6. b.
7. d.
8. d.

Objective 7: Compare and order numbers to one billion.

Vocabulary

greater than
less than
the greatest
the least
compare

<

=

>

Materials

base ten blocks
number cubes
blank paper

Student Copies:

Comparing Numbers Recording Sheet
one per group
Comparing Numbers Practice

Language Foundation

1. Review the symbols for comparing numbers as used in previous lessons: <, =, >.
2. Find out from the ESL teacher to what extent students have studied comparative forms of words. This lesson presents the suffixes -er and -est when forming words to compare numbers or objects. Draw three circles of increasing size on the board or overhead. Label the circles large, larger than, the largest accordingly. Now substitute the words with great, greater than, the greatest. Remind students that we use "-er than" when comparing two things; we use "-est" when comparing three or more things. (Show that -er has two letters; -est has three...)
3. Before assigning the Comparing Numbers Practice activity, repeat the activity above (or a similar one) using the words small, smaller, the smallest. This time, put numbers inside the circles accordingly. Tell students that **the least** is another way of saying the smallest when comparing these numbers.

Mathematics Component

1. Write the following two numbers on the board: 28 and 54. Ask students to put the numbers in order from least to greatest. (28, 54) Tell students we want to compare the numbers. Review the symbols for comparing numbers. ($>$, $<$ and $=$) Ask which number is **greater**. (54) Write $54 > 28$ on the board. Ask a student to model why 54 is greater than 28 on the overhead using base ten blocks. (Elicit that 54 contains 5 tens and 28 only contains 2 tens.) Write 146 and 291 on the board and ask students to order the numbers from greatest to least. (291, 146) Ask students which number is **less**. (146) Write $146 < 291$ on the board. Ask a student to show why 146 is less than 291 on the overhead using base ten blocks. (Elicit that 291 contains 2 groups of 100 and 146 contains only 1 hundred.)
2. Divide the students into groups of 3 or 4 and give each group 3 number cubes.
 - Begin with one group and ask a student to roll all 3 of their number cubes.
 - Ask the student to tell you a number which uses all three digits. Record the number on the chalkboard.
 - Have a student in the second group roll all 3 of their number cubes. Ask the student to tell you a number which uses all three digits. Record the number below the first one on the chalkboard.
 - Have a student in the third group roll all 3 of their number cubes and record the number.
 - Ask students to help you put the numbers in order from least to greatest as you write them on the board in order.
 - Ask which number is the **greatest**. Ask a student to come up to the overhead and show why one number is greater than the others using base ten blocks. Elicit that one number contains more hundreds than the other.
 - Lead students to understand that to compare and order numbers:
 - they look at the hundreds digit first,
 - then, **if needed**, they go on to the tens digit, and
 - then, **if needed**, they compare the ones digits.
3. When students are comfortable with this concept, they can begin separate group activities comparing several numbers. Distribute small slips of blank paper to **each student**. Each group will also need a Comparing Numbers Recording Sheet.
 - Have a student in each group roll the 3 number cubes and record a number using all three digits on their paper.
 - Have those students pass the number cubes to the next student in their group. That student will roll the cubes and record a number.
 - Have students continue in this way until each student in the group has recorded a number on their paper.

- When all have finished, ask the students to arrange their slips of paper in order from least to greatest within their groups. (If students have a great deal of difficulty, allow them to physically compare the numbers using base ten blocks.)
- When all students in each group have agreed on the order, have the group record their numbers from least to greatest on the Comparing Numbers Recording Sheet.
- Ask students in each group to discuss and record which number is the greatest and which number is the least.
- Have students repeat the activity as needed to reinforce the language and skills used in comparing numbers.
- **Variation:** You may want to repeat the activity and have students order their numbers from greatest to least.

The Comparing Numbers Practice activity sheet may be done as a guided whole group practice or assigned as individual follow-up.

Name _____

Comparing Numbers Recording Sheet

Write the numbers in order from least to greatest.

Exercise 1:

_____, _____, _____, _____, _____, _____, _____, _____,

The greatest number is _____. The least number is _____.

Exercise 2:

_____, _____, _____, _____, _____, _____, _____, _____,

The least number is _____. The greatest number is _____.

Exercise 3:

_____, _____, _____, _____, _____, _____, _____, _____,

The greatest number is _____. The least number is _____.

Exercise 4:

_____, _____, _____, _____, _____, _____, _____, _____,

The least number is _____. The greatest number is _____.

Name _____

Comparing Numbers Practice

Write $>$, $<$, or $=$ in the \bigcirc .

1) 6,718 \bigcirc 6,717	2) 4,300 \bigcirc 4,030
3) 3,456 \bigcirc 8,465	4) 87,534 \bigcirc 87,345
5) 50,200 \bigcirc 500,200	6) 783,267 \bigcirc 783,269
7) 1,869,334 \bigcirc 978,869	8) 2,456,709 \bigcirc 2,456,790
Now you write an example comparing two numbers.	
9) _____ \bigcirc _____	
10) _____ \bigcirc _____	

Write the numbers in order from least to greatest.

1) 34,813 34,831 36,828 34,829
_____, _____, _____, _____

2) 56,825 56,805 56,815 56,518
_____, _____, _____, _____

3) 12,345,870,675 12,345,780,675 12,543,870,675
_____, _____, _____

Answer Key
Obj. 7

Comparing Numbers Practice

Write $>$, $<$, or $=$ in the \bigcirc .

- | | | | | | | | |
|----|-----------|-----|---------|----|-----------|-----|-----------|
| 1) | 6,718 | $>$ | 6,717 | 2) | 4,300 | $>$ | 4,030 |
| 3) | 3,456 | $<$ | 8,465 | 4) | 87,534 | $>$ | 87,345 |
| 5) | 50,200 | $<$ | 500,200 | 6) | 783,267 | $<$ | 783,269 |
| 7) | 1,869,334 | $>$ | 978,869 | 8) | 2,456,709 | $<$ | 2,456,790 |

Write the numbers in order from least to greatest.

- | | | | | |
|----|-----------------------|-----------------------|-----------------------|---------------|
| 1) | <u>36.828</u> | <u>34.829</u> | <u>34.813</u> | <u>34.31</u> |
| 2) | <u>56.825</u> | <u>56.805</u> | <u>56.518</u> | <u>56.815</u> |
| 3) | <u>12,543,870.675</u> | <u>12,345,870.675</u> | <u>12,345,780.675</u> | |

Objective 8: Use ordinal numbers first through thirtieth.

Vocabulary

position
order
first
second
third
fourth
fifth
sixth
seventh
eighth
ninth
tenth
eleventh
twelfth.....on to thirtieth

Materials

3 x 5 cards labeled first through twelfth
colored pencils, crayons, or markers
colored transparency markers
Ordinal Concentration Cards
(set/pair of students)

Transparencies:

Ordinal Numbers
Ordinal Circles
Paper Strips
Directions for Paper Strips
The Calendar
Schedule
The Apartment

Student Copies:

Ordinal Numbers
Paper Strips
The Calendar
My Schedule
The Apartment

Language Foundation

1. After completing #7 of the mathematics component, students need to become familiar with the shortened form of these numbers. They will need to know that first can be written as 1st, second as 2nd, third as 3rd, etc. One way to teach this would be to make a chart which can later be posted in the room. Label it "Position in Line".

<u>1</u>	<u>first</u>	1st	
<u>2</u>	<u>second</u>	2nd	
<u>3</u>	<u>third</u>	3rd	
<u>4</u>	<u>fourth</u>	4th	
<u>5</u>	<u>fifth</u>	5th	
<u>6</u>	<u>sixth</u>	6th	etc.

By underlining the number of the position in line and the last two letters of the ordinal word and then combining the two, students can see how the shortened form (abbreviation) is formed.

2. Before doing the calendar activity, check to see if students have studied the months of the year yet. If appropriate, you may need to teach them. Also, make sure students know the letters which represent each day of the week at the top of the calendar.
Note: Students who follow the Islamic or Lunar calendar may think in terms of a 13-month year.

Mathematics Component

1. Explain that today we will learn about numbers that describe the position or order of things. Have five students line up at the door. Start with the person closest to the door and say, "(Name) is **first**." Give that student a 3 x 5 card labeled "first." Point to the second person and say, "(Name) is **second**." Hand that student a card labeled "second." Continue in this manner with all five students. When you have finished, go back and reread each card in order. Collect the cards. Have the students turn around and begin at the opposite end of the line, repeating the same activity with the student who used to be fifth now being first.
2. Tape twelve 5 x 7 cards, labeled first through twelfth, to the chalkboard in order. Write the appropriate number, 1 through 12, above each card. Read each ordinal number having the students pronounce them with you. Explain that these numbers which describe the position or order are called **ordinal numbers**. Pass out student copies of Ordinal Numbers and use a transparency copy to model how to copy the ordinal name for each of the numbers from the blackboard. (A completed copy of this page may be enlarged and posted for student reference.) Have students work in pairs to practice pronouncing these ordinal numbers.
3. Place the transparency Ordinal Circles, each colored in with a different color or pattern, on the overhead. (Use each of the transparency marker colors and then use dots or lines or any other pattern to distinguish the other circles.) Count the circles out loud and number each one 1-12 to the left of the circles. Point to the first circle and say, "The (red) circle is **first**." Emphasize the word "first" as you write it to the right of the circle. Point to the second circle and say, "The blue circle is _____." (Remember to give students plenty of wait time and help with pronunciation when needed.) Write **second** to the right of the appropriate circle.

Example:

Ordinal Circles

1. ○ first
2. ○ second



Continue in this manner until the position of each circle has been named. When you have finished, wipe off the transparency. Turn the transparency upside down on the overhead and repeat the activity, pointing to each circle, emphasizing each ordinal name, and writing each ordinal name to the right of each circle. Then, go back to the circle labeled "first" and write a 1 on the left side of the circle. Go to the circle labeled "second" and write a 2 on the left side of the circle. Have students help label the remaining circles with the appropriate number. Reread ordinal numbers, having students pronounce them with you.

4. (Note: This activity uses color words so you may need to review color words with beginning proficiency students.) Cut a vertical strip from the Paper Strips transparency. Place the strip on the overhead, point from the bottom to the top and say, "I will color the **third** square yellow." Using an overhead marker, model starting at the bottom and saying first, second, third and then coloring in the third square. Say, "I will color the **fifth** square blue." Model locating the fifth square and color it in appropriately. Give each student a matching vertical paper strip and either colored pencils, crayons, or markers. Tell students to listen carefully as you read some directions. Tell them that they will need to find the right square to color. Place the transparency Directions for Paper Strips on the overhead, covering all but the first line of the directions. Read the first sentence out loud two times, emphasizing the ordinal number and allowing students time to color the appropriate box. Continue in the same manner, uncovering one line at a time until students have finished coloring all squares.

- Color the **first** square red.
- Color the **third** square blue.
- Color the **fourth** square green.
- Color the **eighth** square yellow.
- Color the **fifth** square brown.
- Color the **tenth** square black.
- Color the **seventh** square purple.
- Write a favorite number in the **twelfth** square.
- Write your name on the back of the strip.

Have students compare their strips to see if they colored them in the same order.

5. Write the first twelve ordinal numbers on the board. Give each student a copy of The Calendar. Ask students how many months are in a year. (12) Using a transparency copy of The Calendar, read the names of the months in order with the students. Point to the calendar and say, "Which is the **first** month?" (January) Ask, "Which month is the **twelfth** month?" Point to the word twelfth on the board. (December) Continue in this manner until students feel comfortable giving the ordinal number for various months. Now point to September and the ordinal numbers on the board as you say, "September is the ____ month." (ninth) Name other months and elicit the ordinal name for each. Repeat the names of the months in order, along with their ordinal names. Ask students to complete the questions at the bottom of the activity page.

Extension: If students are already comfortable with the calendar and the days of the week, you can extend this activity by talking about which day of the week Friday is, etc. Depending on your students English language proficiency, you can also extend this activity and use the calendar to talk about ordinal names above twelfth. Ask questions such as, "What is the date of the third Friday in May?" etc. Model how to respond by saying, "The third Friday in May is the **fifteenth**."

6. List classes on the board which most students go to each day. Lead a discussion about your students' schedules. Older students may want to discuss the fact that they are using a block schedule and do not go to all classes each day. Younger students may want to talk about what day they have special activities such as music. Ask students to think about the classes they are going to today. (Middle and high school students may be on a block schedule. If they have a written schedule, look at the schedules with the students.) Ask what their first class is on this day, what their second class is, etc. Using the Schedule transparency, have students help you fill in the blanks to create a **sample** daily schedule for one student in your class as shown below. Begin by writing the day of the week at the top of the page. If older students are on a block schedule, they may want to write "Blue Day" or "A Day," etc. Then, they may not need to fill in 7 classes. Use as many lines as needed. **(Note:** The second blank schedule may be used as a second sample or, for older students, may be used to compare two different block schedule days.

Example: Day of the week: Monday / (Blue Day)

Rialdo's Schedule

Course/Subject	Order
ESL	1,2
Math	3
Science	4
Health and PE	5
Music	6
Art	7

Pass out student copies of My Schedule and have students fill in individual schedules using a word bank on the board, as needed. Looking at the transparency copy of the sample schedule, ask "What subject does (Rialdo) have third?" (Math) Then ask, "(Name), what class do you have third? (Answer will depend on the student's individual schedule.) Repeat this procedure with other subjects, using the sample schedule as a model and then asking students about their own classes. When students are comfortable with this procedure, point to the word "Order" on the sample schedule and ask questions such as, "What **order** is Music?" (Music is sixth.) Ask other students in what order certain classes are on their schedule. Have students complete the bottom of their own activity sheets.

7. Give each pair of students a set of Ordinal Concentration Cards. Have students work in pairs to **match** "1" with "first" etc. The game should be played in the same way as regular concentration. All cards are shuffled and turned face down, individually, on a surface. The first player turns over two cards, trying to find a match - "1" with "first" etc. As the cards are turned over, encourage students to read each one out loud. If the cards match, the player removes them and turns over two new cards. If they do

not match, the cards are returned to their original position and it becomes the second player's turn to find a match. Play continues back and forth in the same manner, until all cards have been removed. The winner is the player with the most number of matches.

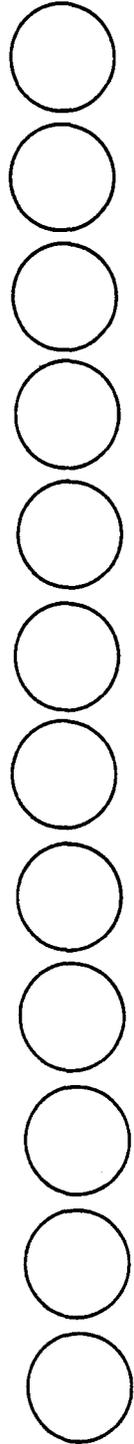
8. Make a copy of the The Apartment and write in the names of students in the class, one name per floor, and then make student copies of the activity sheet. (Note: You may need to place two names on each floor in order to include all students in the class.) Pass out student copies of the activity sheet. Using a transparency copy, point to the students' names and read them out loud. Explain that in some countries, we enter a building at the street level and then go up to the first floor. In this picture, the street level is called the first floor. Ask students why this might be called the first floor? (Elicit an understanding that it is the floor you must enter before going to the others - it is "first" in order as you go up.) Ask a student to come up and point to the sixth floor. Practice naming a few floors until students are comfortable with the concept of starting with the first floor and going up. Ask students to find the first floor and point to it. Ask whose name is written on the first floor. Model how to fill in the student's name(s) in the appropriate place below the apartment building on the activity sheet. Model how to find the tenth floor. Ask students to tell whose name(s) is written on the tenth floor and then model filling in the name on the activity sheet. Ask students to complete the activity, filling in a student's name for each floor.

Name _____

Ordinal Numbers

Position (Where?)	Ordinal Number
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Ordinal Circles



Directions for Paper Strips

- Color the **first** square red.
- Color the **third** square blue.
- Color the **fourth** square green.
- Color the **eighth** square yellow.
- Color the **fifth** square brown.
- Color the **tenth** square black.
- Color the **seventh** square purple.
- Write a favorite number in the **twelfth** square.
- Write your name on the back of the strip.

Name _____

Date _____

The Calendar

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S				
JANUARY							FEBRUARY							MARCH							APRIL										
			1	2	3	4							1	1	2	3	4	5	6	7				1	2	3	4				
5	6	7	8	9	10	11	2	3	4	5	6	7	8	8	9	10	11	12	13	14	5	6	7	8	9	10	11				
12	13	14	15	16	17	18	9	10	11	12	13	14	15	15	16	17	18	19	20	21	12	13	14	15	16	17	18				
19	20	21	22	23	24	25	16	17	18	19	20	21	22	22	23	24	25	26	27	28	19	20	21	22	23	24	25				
26	27	28	29	30	31	23	24	25	26	27	28	29	29	30	31	26	27	28	29	30											
MAY							JUNE							JULY							AUGUST										
					1	2				1	2	3	4	5	6						1	2	3	4	2	3	4	5	6	7	8
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	9	10	11	12	13	14	15				
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18	16	17	18	19	20	21	22				
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25	23	24	25	26	27	28	29				
24	25	26	27	28	29	30	28	29	30	26	27	28	29	30	31	26	27	28	29	30	31	30	31								
31																															
SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER										
			1	2	3	4	5						1	2	3	1	2	3	4	5	6	7				1	2	3	4	5	
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12				
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19				
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26				
27	28	29	30	25	26	27	28	29	30	31	29	30	27	28	29	30	31														

Select the ordinal number that completes each sentence in 1-4: first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth

1. April is the _____ month.
2. June is the _____ month.
3. August is the _____ month.
4. January is the _____ month.

Select the month that answers the question for 5-9: January, February, March, April, May, June, July, August, September, October, November, December

5. What is the seventh month? _____
6. What is the tenth month? _____
7. What is the second month? _____
8. What is the fifth month? _____
9. What is the third month? _____

Day of the Week: _____

Schedule

Course/Subject	Period (Order)

Day of the Week: _____

Course/Subject	Period (Order)

Name _____

Day of the Week: _____

My Schedule

Course/Subject	Period (Order)

Write the course/subject for 1-5.

1. What course/subject is **fourth**?
2. What course/subject is **first**?
3. What course/subject is **seventh**?
4. What course/subject is **second**?
5. What course/subject is **fifth**?

Write an ordinal number for 6-9.

6. What period (order) is math?
7. What period (order) is science?
8. What period (order) is ESL?
9. What period (order) is the class you are in now?

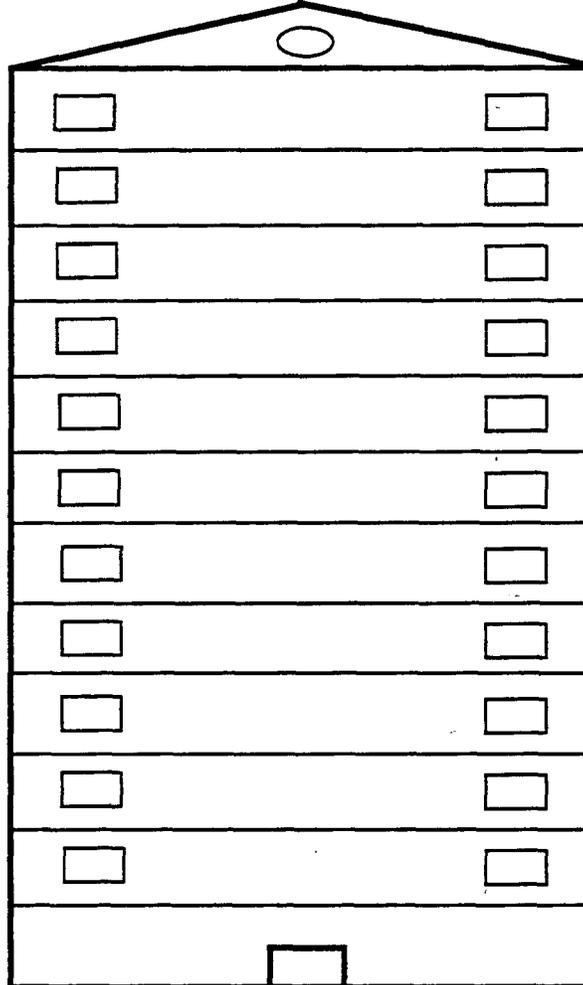
1	first
2	second
3	third
4	fourth

5	fifth
6	sixth
7	seventh
8	eighth

9	ninth
10	tenth
11	eleventh
12	twelfth

Name _____

The Apartment



Who is on each floor?

1. first _____
2. tenth _____
3. fifth _____
4. eighth _____
5. eleventh _____
6. seventh _____

7. ninth _____
8. second _____
9. twelfth _____
10. third _____
11. sixth _____
12. fourth _____

Answer Key
Obj. 8

Ordinal Numbers

- 1 first
- 2 second
- 3 third
- 4 fourth
- 5 fifth
- 6 sixth
- 7 seventh
- 8 eighth
- 9 ninth
- 10 tenth
- 11 eleventh
- 12 twelfth

The Calendar

Select the ordinal number that completes each sentence.

1. April is the fourth month.
2. June is the sixth month.
3. August is the eighth month.
4. January is the first month.

Select the month that answers the question.

5. July
6. October
7. February
8. May
9. March

Objective 9: Count by 2s, 5s, and 10s up to 100. Explore patterns created when counting by 2s, 5s, and 10s and describe counting by 2s as an even or odd pattern.

Vocabulary

even
odd
pattern
count by 2s
count on
skip
skip count
join
combine
put together

Materials

Hundreds boards
2-sided counters
crayons
multi link cubes
number cubes
small game markers (not provided)
wall-mounted number line
pennies, nickels, dimes
envelopes containing nickels
base 10 unit cubes

Transparencies:

Hundreds Board
Joining Even Numbers
Joining Odd Numbers
Rules for the Even and Odd Game
Even and Odd Game

Student Copies:

Even and Odd Game
Even and Odd Numbers
Even and Odd Activity Sheet
Counting Coins

Language Foundation

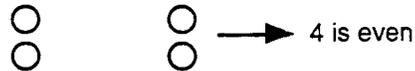
1. Students may need to have the word **skip** explained. Lay out a row of 15 counters on the overhead. Tell students you are going to “skip one” and then proceed to touch the 1st, 3rd, 5th, etc. to the end. Repeat the statement and activity. Tell them that skip means to pass over or to pass by. Now, tell students that this time you will “skip two” and repeat the activity touching the 1st, 4th, 7th, 10th, 13th counters. Tell them that this time you passed over two counters each time. Explain to students that in this lesson they will be skip counting, meaning that they will not count using every number, but will skip some.
2. How many numbers to skip will depend on the pattern being taught (2s, 5s, 10s). The term **count on** can be used when students understand the pattern and are given directions about how many numbers to skip.
3. Students will be combining sets of cubes. Make two or more groups of any objects in your classroom and put them together to form one big group. Tell students that when we put things together, we **combine** them. Explain that **join** is another word for combine.

Mathematics Component

This objective will take more than one day to complete.

Count by 2s

1. Give each pair of students a hundreds board, a pile of two sided counters, and a crayon. Ask students to count out 4 counters as you do the same on the overhead. Model dividing this number into 2 equal piles and then have students do the same.



Tell students that we can divide 4 into 2 equal piles, so 4 is **even**.

Draw a square around the 4 on the overhead hundreds board as you say, "4 is even."

Have students do the same.

Repeat this activity with 12 counters. Then draw a square around the 12 on the hundreds board as you say, "12 is **even**." Have students do the same.

Repeat this procedure with 16 counters. Draw a square around 16 on the hundreds board as you say, "16 is **even**." Have students do the same.

Ask students to count out 9 counters and divide them into 2 equal piles. Model on the overhead and discuss the 2 piles of 4 and the 1 left over.



Tell students that 9 can not be divided into 2 equal piles (1 is left over) so 9 is **odd**.

Circle 9 on the hundreds board as you say, "9 is odd."

Have students do the same.

Repeat this procedure for 17, naming it odd and circling the number on the hundreds board.

Have students repeat this activity with 1, 2, 3, 5, 7, 8, 10, 11, 13, 14, 15, 18, 19, and 20. Ask, "What pattern do you see? (Every other number has a square around it or every other number has a circle...)"

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

Help students make predictions about numbers larger than 20. Check their predictions by using counters and dividing them into 2 equal groups. Ask students to put a square around all of the remaining even numbers on their hundreds boards up to 100. Tell them to look at the squares (even numbers) and tell what numbers they end in. (0, 2, 4, 6, 8) Explain that **all** even numbers end in 0, 2, 4, 6, or 8.

Using the hundreds board, read all of the even numbers to 100 with the students. Ask what the numbers are called that do not end in 0, 2, 4, 6, or 8. (Odd) Write 456 on the board and ask students if it is even or odd. Why? (Even because it ends in 6. It can be divided into 2 equal piles.) Repeat with 1, 248. Write 837 and ask if it is even or odd. Why? (Odd because it does not end in 0, 2, 4, 6, or 8. It can not be divided into 2 equal piles.) Repeat with 13, 057.

2. Distribute 20 multi link cubes and a hundreds board (TR) to each pair of students. Ask students to hold up one cube. Say, "1 is **odd**."



Ask them to circle the number 1 on their hundreds board as you model on a transparency copy.

Ask them to join a second cube to the first one as you model. Hold up the two cubes and say, "2 is **even**."



Have students put an X through the 2 on their hundreds board as you model.

Have students join a third cube as shown below.



Point to the top row and count the cubes. Write the number beside the top row. Point to the bottom row and count the cubes. Write the number beside the bottom row. Tell students that 3 is odd because **it does not form two even rows**. Model drawing a circle around 3 on the hundreds board as students do the same.

Explain that all even numbers will form 2 even rows (hold up a model) and all odd numbers will not form two even rows.

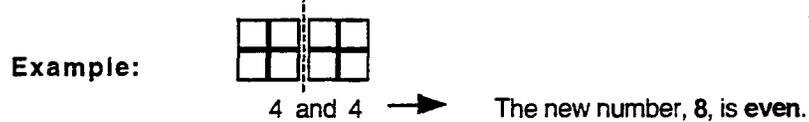
Have students join 4 cubes, forming a square.



Ask students, "Is 4 odd or even?" (even) Lead students to verbalize why 4 is even. (It forms 2 even rows of cubes - 2 on top and 2 on the bottom.) Model counting the cubes in each row. Ask them to put an X over 4 on their hundreds board.

Model the numbers 5 and 6 together as a class, checking to see if each number will form 2 even rows. Mark the hundreds board appropriately for each number. Ask students to work with a partner to continue building models for the numbers through 20, deciding if they are even or odd, and marking their hundreds board. When they have finished, discuss results and ask students if they see any patterns. (Starting with 1, every other number is odd...)

3. Have each student form an even number with their multi link cubes as above. **Remind them to place cubes into two even rows!** Ask students what they think will happen if they join two even numbers together. Say, "Will the new number be odd or even?" Have pairs of students join their two even numbers of cubes together. Repeat, "Is the new number even or odd?" (even)



Have students share their two numbers and the results out loud. Have them repeat the experiment with two other even numbers. Ask if they think that combining **any** two even numbers will give an even number. Have students work in pairs, with each student forming a **different even number** using the cubes. Then ask them to join the two together. Place the Joining Even Numbers transparency on the overhead. Go around to each pair of students and record: student 1s original even number, student 2s original even number, the new number which resulted from joining the two even numbers, and the the final result (even or odd).

Example:

Student 1	Student 2	New Number	Result
4 →	6	10	Even
2	4	6	Even

When each pair has shared their information, ask what pattern the students see. Lead them to understand that **two even numbers will combine to form another even number** as you record this information in the space provided below the chart. This chart may then be enlarged and posted in the room for reinforcement.

Have students form any two odd numbers and ask what they think will happen if they join the two odd numbers together. Say, "Will the new number be odd or even?" Have students join the two odd numbers of cubes. Repeat, "Is the new number odd or even?" (even) Ask why it is even. (The new number forms two even rows of cubes.)

