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Student Expectation: Students will use place value to read, write, and describe the value of whole numbers

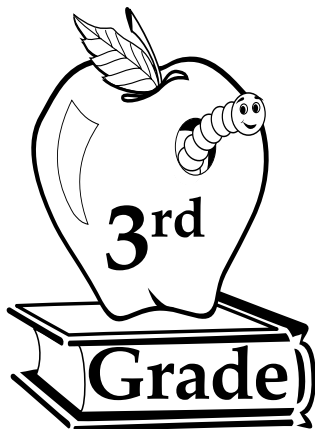
Unit 1 – Lesson 1

The student uses place value to communicate about increasingly larger whole numbers in verbal and written form, including money. The student is expected to use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999.

Study the TEKS . . .

Prior Knowledge

In 2nd grade, the students used place value to 999. They also used symbols $<$, $>$, and $=$, so these symbols should be reinforced. The 2nd grade TEKS do not include writing numbers with written words. Therefore, the extended written form is a new skill in 3rd grade.



Next Steps

In 4th grade, the students will extend their knowledge of place value to the millions and add decimals involving tenths and hundredths. In 5th grade, they will use place value to the billions and decimals to the thousandths.

In third grade . . .

This is an important year for introducing the concept of a comma and relating the comma to a group of numbers. Students will add one comma using thousands, and each consecutive year, they will add another comma (into the millions and billions). Concrete models such as Base Ten Blocks become unmanageable as students investigate numbers reaching 9,999. This makes graphic organizers for place value important. Additionally, in 3rd grade, students must write numbers with words. Communication is the key!

Student Expectation: Students will translate numbers between various forms

Initial Instruction—Part III

Whole Numbers and Place Value

Questioning Technique

Instructional Strategy

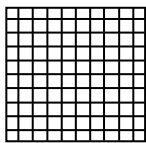
Ask: What two ways have we already shown this number? (standard form and Base Ten Blocks) What is another way to show the number 1,231? (Have students show it in expanded form, $1,000 + 200 + 30 + 1$, and written form, one thousand two hundred thirty-one.)

Discuss again how each of these representations shows the same number.

Extension: For an additional activity to ensure your students have learned the various forms of numbers, try this:

- Give each student a piece of paper. Students will fold the paper in half vertically and then horizontally, dividing the paper into four parts.
- In the top left square, students will write “standard form.”
- In the top right square, they will write “expanded form.”
- In the bottom left square, they will write “written form.”
- In the bottom right square, they will write “Base Ten Blocks.”
- Write the standard form of a number up to 10,000 on a note card. Make one card for each student, and place all note cards in a bowl. Each student will draw a number and record the four representations on his/her paper. Allow each student to then present his/her number to the class and explain the different representations. This process may be repeated by having students use the back of the paper.

Example 3: What number does this model represent?

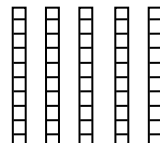


These are hundreds. There are two.

200

$$200 + 50 + 3 = 253$$

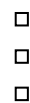
Two hundred fifty-three



These are tens.

There are five of them.

50



These are ones.

There are three of them.

3

What needs to be added to this number to have the number 275?

Ask: Where should we begin in answering this second question? (Allow students to brainstorm approaches.)

Say: We need to understand what we have now and what we need to have. We have to find the difference between the two numbers.

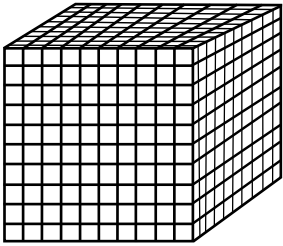
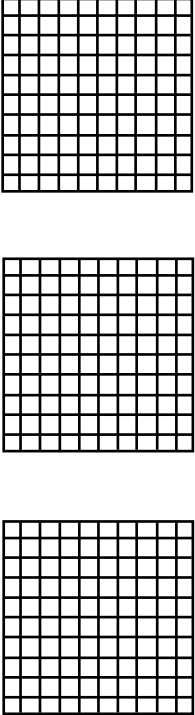
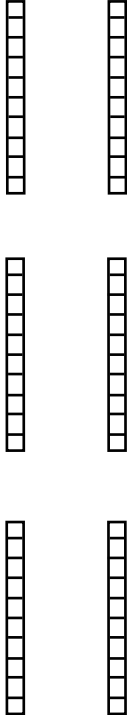

Unit 1 – Lesson 1

Number Concepts

Student Expectation: Students will translate numbers between various forms

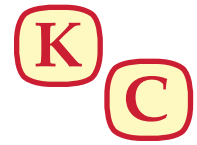
Initial Instruction—Part III—Examples

Whole Numbers and Place Value

	THOUSANDS	HUNDREDS	TENS	ONES
BASE TEN BLOCKS				
WRITTEN FORM	ONE THOUSAND	THREE HUNDRED	SIXTY	SEVEN
EXPANDED FORM	1,000	300	60	7
STANDARD FORM	1	3	6	7

Student Expectation: Students will use a literature connection to place value

Initial Instruction—Part V
Whole Numbers and Place Value
Optional Reading Activity



Teacher note: The following activity uses the book *A Place for Zero* by Angeline Sparagna LoPresti to discuss moving horizontally from right to left on the place value chart, i.e., what comes after 9, etc. This relates to pages 24-32 in the book. The book can also be used before Initial Instruction - Part VI to discuss using zeros as place holders to create larger numbers. The first part of the book discusses the additive and multiplicative nature of zero, which are not in this unit, but are valid mathematical concepts.

Group size: whole class

Materials: Instructional Strategy, below; a copy of the book *A Place for Zero*; 3 pocket folders without brads; tag board or poster board strips (9" by 3"); markers; tape

Before class:

1. To make a place value chart, tape the three opened folders together, side-by-side, and label each pocket with a place value:

HUNDRED THOUSANDS	TEN THOUSANDS	THOUSANDS	HUNDREDS	TENS	ONES

2. Cut out 90 tagboard strips. At the top of each strip, when turned vertically, write a number. There should be 9 of each digit, 0 - 9. Laminate the strips if possible.

Directions: Read the book *A Place for Zero* aloud to the class, or allow students to take turns reading. The activity below refers specifically to pages 24-32 from the book.

Questioning Technique

Instructional Strategy

Place a small digit (a 2 or 3) in the far right side of the ones pocket. Have the students discuss what this means (2 or 3 ones).

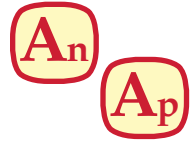
Ask: What happens if we add one to this number? (It increases by one. Make the change on the chart. Continue to do this until you get to the digit 9.)

Ask: What happens if we add one to the number 9? (It increases by one, but now a 0 must be placed in the ones place, and a 1 goes in the tens place.)

Repeat this process to discuss what happens after numbers like 19, 99, 109, 199, 1999, etc.

Student Expectation: Students will identify unknown whole numbers based on place value clues.

*Cooperative Learning
Whole Numbers and Place Value*



“I Have; Who Has?”

Teacher note: In this activity, students will read a question concerning number concepts and place value. Using mental math, students must respond with the correctly-identified number.

Group size: whole class

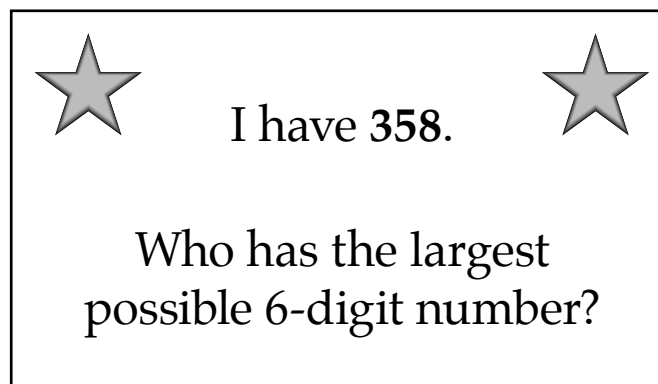
Materials: game cards, pages 39-41

Before class: Make one copy of the game cards onto cardstock and laminate. Cut out the cards and shuffle them.

Directions:

- Give each student one card, but keep the card below with the stars on it for yourself. (Disperse additional cards as evenly as possible.)
- The game starts with the *question* on your card marked with stars. Say aloud “Who has...?”
- The student who has the correct number will read aloud his/her card. “I have ____.” Once this is confirmed as correct, the student will read his/her question, “Who has ____?”
- If everyone has answered correctly, progress will continue until a student reads the clue for the number on your card.

Teaching suggestion: Some of the cards have two or three clues for the students to process, and simply reading aloud might not allow them to determine the answer. It would be helpful if the student who is reading goes to the front of the class and uses a place value chart to fill in the clues after he/she has read them, so students can see *and* hear the clues given.



Student Expectation: Students will identify unknown whole numbers based on place value clues.

Cooperative Learning—Game Cards

Whole Numbers and Place Value

"I Have; Who Has?"

<p>I have 999,999.</p> <p>Who has a number between 60,000 and 65,000?</p>	<p>I have 62,000.</p> <p>Who has a numeral with a 5 in the hundred thousands place?</p>
<p>I have 520,632.</p> <p>Who has a 5-digit number between 40,000 and 30,000?</p>	<p>I have 32,562.</p> <p>Who has a 6-digit number with a 6 in the thousands place and a 4 in the hundreds place?</p>
<p>I have 126,430.</p> <p>Who has a 3-digit number that has a 6 in the tens place?</p>	<p>I have 261.</p> <p>Who has a 4-digit number with a 5 in the thousands place and a 7 in the ones place?</p>
<p>I have 5,257.</p> <p>Who has a 5-digit numeral with a 7 in the ten thousands place and a 2 in the hundreds place?</p>	<p>I have 70,251.</p> <p>Who has a 2-digit numeral?</p>

Student Expectation: Students will identify unknown whole numbers based on place value clues.

Cooperative Learning—Game Cards

Whole Numbers and Place Value

“I Have; Who Has?”

<p>I have 93.</p> <p>Who has a number that is between 400,000 and 500,000 and has a 1 in the thousands place?</p>	<p>I have 451,620.</p> <p>Who has a 6-digit number that has a 9 in the hundred thousands place and the number in the thousands place is between 1 and 4?</p>
<p>I have 952,341.</p> <p>Who has a 5-digit number that has a 9 in the ten thousands place, a 6 in the thousands place, and a 4 in the tens place?</p>	<p>I have 96,041.</p> <p>Who has a numeral between 800 and 1,000 that has a 5 in the tens place?</p>
<p>I have 950.</p> <p>Who has a number between 700,000 and 800,000 with a 6 in the hundreds place?</p>	<p>I have 732,628.</p> <p>Who has a 4-digit number that has a 2 in the tens place and a 7 in the hundreds place?</p>
<p>I have 3,720.</p> <p>Who has a 3-digit number that has an 8 in the ones place?</p>	<p>I have 708.</p> <p>Who has a 6-digit number with a 2 in the hundred thousands place?</p>

Student Expectation: Students will identify unknown whole numbers based on place value clues.

Cooperative Learning—Game Cards

Whole Numbers and Place Value

“I Have; Who Has?”

<p>I have 205,157.</p> <p>Who has a 5-digit number between 10,000 and 15,000 that has a 6 in the hundreds place?</p>	<p>I have 13,681.</p> <p>Who has a 4-digit numeral between 8,000 and 9,000?</p>
<p>I have 8,725.</p> <p>Who has a 5-digit number that has a 5 in the ten thousands place and a 0 in the hundreds place?</p>	<p>I have 57,028.</p> <p>Who has a 4-digit number with a 7 in the thousands place and a 6 in the ones place?</p>
<p>I have 7,826.</p> <p>Who has a 6-digit number with a 3 in the hundred thousands place and a 4 in the thousands place?</p>	<p>I have 324,000.</p> <p>Who has a 5-digit number that has an 8 in the ten thousands place and a 6 in the hundreds place?</p>
<p>I have 84,632.</p> <p>Who has a 6-digit number with a 6 in the hundred thousands place and an 8 in the tens place?</p>	<p>I have 654,380.</p> <p>Who has a number between 300 and 400?</p>