Comparing and Ordering Numbers

Strand: Number and Number Sense

Topic: Read, write, compare and order numbers

Primary SOL: 3.1 The student will

a) read, write, and identify the place and value of each digit in a six-digit whole number, with and without models

c) compare and order whole numbers, each 9,999 or less

Related SOL:

Materials:

- Digit cards-one set for each student copied on various colors (attached)
- Clear plastic sleeves
- Dry erase markers
- Three-Digit Place Value Recording Sheet (attached)
- Four-Digit Place Value Recording Sheet (attached)

Vocabulary:

digit, place, value, compare, order, ones, tens, hundreds, thousands, greater than, less than, equal to

Student/Teacher Actions: What should students be doing? What should teachers be doing?

Demonstrate the Place Value Game under a document camera for students to view.

1. Show students how to shuffle or mix the deck of cards and place face down. Draw and turn over the top 3 cards and place in boxes on recording sheet. Ask students, *what numbers can we make using all three digits?* Record student answers on the Three-Digit Place Value Recording Sheet. Ask the following questions and discuss student responses: *Which number has the greatest value? How do you know? Which number has the least value? How do you know? Which number has the greatest tens?*
2. Ask students to help put the numbers in order from least to greatest. Next, put the numbers in order from greatest to least.
3. Tell students that they will play the Three-digit Place Value game. Distribute the Three-Digit Place Value Recording Sheet. Group students into pairs and give each pair a set of digit cards (different color card sets for each student helps keep cards organized). ***Note: put sheets in clear plastic sleeves so students can play more than one round. Have students write using dry erase markers. You may want to have students complete a sheet as an exit ticket after playing a few rounds.***

4. Have students shuffle their deck of cards and put the deck face down in front of them. Each student should then turn over the top three cards and place them in the boxes on the recording sheet. Students should then create six 3-digit numbers using all cards. They should be able to tell their partner which number is the greatest and which is the least. Have them order numbers on their sheet from least to greatest and greatest to least. Have students share with partners the numbers they created and the ordering and check each other's work.
5. Have pairs determine who has the number with the greatest value and the number with the least value and explain their thinking.
6. Observe students playing the game and discussing numbers with partners to ensure understanding.
7. When students are proficient with three-digit numbers have them play using the four-digit recording sheet.
8. After students have had the chance to play several rounds engage them in a discussion about comparing and ordering numbers. Ask for strategies they used to determine the order of the numbers they created.

Assessment

- **Questions**
    - When comparing numbers to determine which number is greater, what place value should be considered first? Why?
    - If you pull zero as your card, where are you most likely to place it when trying to make a number with the greatest value? Why? When making a number with the least value? Why?
    - How is comparing three-digit numbers similar to comparing four-digit numbers? How is it different?
    - How can a number line be helpful in comparing numbers?
- **Journal/writing prompts**
    - Use the digits 2, 5, 3, 8 to make a number with the greatest value. Write the number in expanded form. Using the same digits make a number with the least value. Write the number in expanded form.
    - Samantha has these four cards: 3, 8, 4, 0. Describe how she can arrange the cards to make a number with the greatest value. Also, describe how she can arrange them to make a number with the least value. Explain how you know each would be the greatest or least.

- **Other Assessments**
    - Use one of the recording sheets as an exit ticket. Allow students to draw their own numbers or give them the numbers you want them to use.
    - Circulate during the activity to observe students' strategies and rationales for creating numbers and comparisons. Note who is having difficulty identifying the values, making the models of them, and/or comparing the three-digit numbers. Give help, as needed.
    - Display a four-digit number. Ask students to create a number greater than the displayed number, a number less than the displayed number, and a number equal to the displayed number. Have students record their comparisons on small sheets of paper and explain their reasoning as exit tickets.

Extensions and Connections (for all students)

- Have the students select four cards and make two different four-digit numbers. Have them find the sum and difference between the numbers.
- Brenna and her partner are playing the Four-Digit Place Value game. Brenna drew the following cards: 8, 2, 4, 6. She made a number with the greatest value. Her partner had three of the same digit cards but was able to make a number with a greater value than Brenna's number. What was the fourth digit her partner had and what number could she have made? Explain your thinking.

Strategies for Differentiation

- Use a place value chart or mat to have students record numbers. This will help in identifying values of each digit.
- Use grid paper to help students compare place values vertically rather than horizontally.
- Use dot or number cubes instead of cards.
- Have students use a blank number line and make decisions about where to place numbers on it. By placing the numbers being compared to each other on the number line, students are able to see instantly which number is larger and which is smaller by looking at their position on the line. Students may choose to add as many other numbers to the line as needed to make a good comparison.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Digit Cards

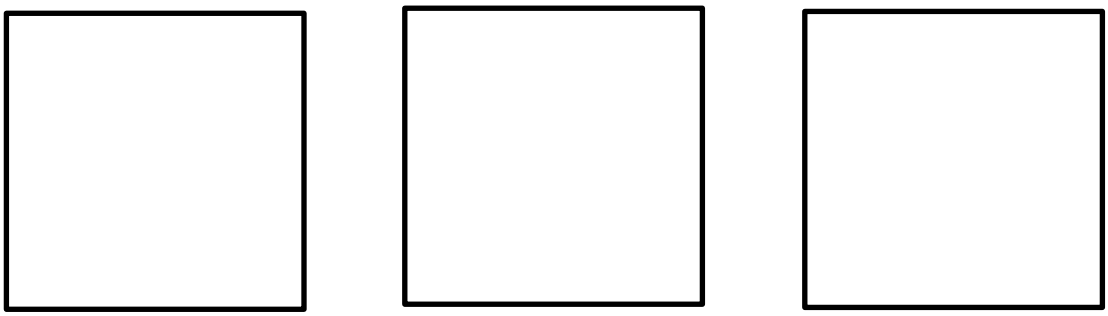
0	1	2	3	4
5	6	7	8	9

0	1	2	3	4
5	6	7	8	9

0	1	2	3	4
5	6	7	8	9

Three-Digit Place Value Recording Sheet

Digit Cards:



Make six numbers using all 3 digits:

_____ _____

_____ _____

_____ _____

Order from Least to Greatest

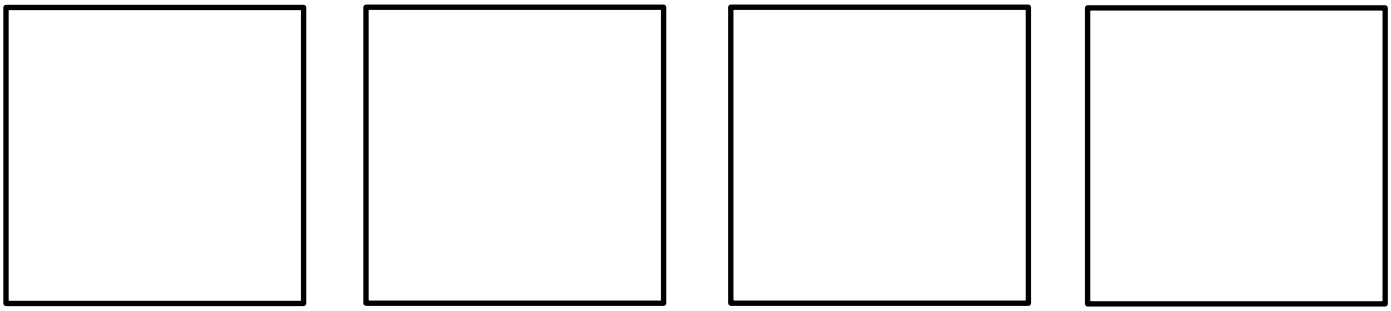
_____, _____, _____, _____, _____, _____

Order from Greatest to Least

_____, _____, _____, _____, _____, _____

Four-Digit Place-value Recording Sheet

Digit Cards:



Make six numbers using all 4 digits:

_____ _____

_____ _____

_____ _____

Order from Least to Greatest

_____, _____, _____, _____, _____, _____

Order from Greatest to Least

_____, _____, _____, _____, _____, _____