# Greater Than, Less Than, or In Between

**Strand:**          Number and Number Sense

**Topic:**          Comparing and Ordering Numbers to 999

**Primary SOL:**          2.1    The student will
          c) compare and order whole numbers between 0 and 999;

**Related SOL:**          2.1a

**Materials**

- **Base-10 blocks**
- Chart paper
- Number cubes (three per student)
- Hundreds chart

**Vocabulary**

*digit, equal, equal to, greater than, greatest, least, less than, not equal, place, symbols (>, <, =), value*

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

1. Begin by writing two one-digit numbers on the board. Ask the students to build these numbers using base-10 blocks. Once students have finished building, ask them to turn to their neighbor and discuss which of these two numbers is greater and how they know this. As students are talking, circulate around the room, listen to conversations, and ask clarifying questions when needed. After one to two minutes, ask students to share their discussion as a whole group; encourage students to use their base-10 blocks to help explain their answers. Model for students how to add the symbol between the two numbers and read the comparison statement.

2. Repeat this activity with a two-digit number. Follow the steps as stated above.

3. Write two three-digit numbers on the board. Ask students to build each of the numbers with their base-10 blocks, turn, and discuss with a neighbor which of these two numbers is greater and how they know this. As you walk around during student discussions, listen for connections from the two previous comparisons. After one to two minutes, ask students to share their discussion as a whole group; encourage students to use their base-10 blocks to help explain their answers. Model for students putting the symbol between the two numbers and reading the comparison statement.

   *(Note: For steps 1–3, use numbers such as 6 and 9, 56 and 29, and 356 and 429. This will lead to the concept of comparing the value of the digits. Even though the 6 and the 9 are in the ones place each time, the whole-number comparison depends on the value of the largest place-value digit. Another example: 5 and 4, 35 and 44, and 305 and 404.*

4. Write two three-digit numbers on the board. Ask students to turn and talk with their neighbors about what strategies can be used to compare these two numbers. After one to two minutes, call on three or four students to share their strategies and record them on a

sheet of chart paper as a later reference guide. If students struggle to explain their strategy, ask guiding questions to help them clarify their thinking:

    a. "What do you notice about these two numbers?"
    b. "What place value do we first look at when comparing two numbers?"
    c. "Do we look at the ones place to help us compare?"
    d. "How many ones are in each number?" "How many tens are in each number?" "How many hundreds are in each number?"

5. Again, write two three-digit numbers on the board. This time, however, the number should be equal. Ask students, *"What symbol would you use or what comparison statement would you write for this set of numbers? Why?"* Have students talk with their neighbor for one to two minutes and then share students' observations as a whole class.

6. Ask students to help you randomly create three different three-digit numbers and write them on the board. Working with a partner or group of three, have students create these numbers using base-1o blocks. Draw a blank number line on the board while students create these numbers. Ask, *"If you were putting these numbers on the number line, which number would go first? Why?"* Encourage students to use their base-10 blocks to model their reasoning. If students appear to be struggling, you may wish to add some benchmark numbers to guide students. Next, ask: *"Which number is the greatest number?" "Where would it go on the number line? Why?"* "Where would the last number go? Why?" and why. Ask students if the number would go closer to either of the numbers already placed on the number line, how do you know?

7. As a whole group, discuss and record students' strategies on chart paper as a reference guide for students.

8. Allow students time to practice comparing and ordering numbers by rolling three number cubes to create three-digit numbers and comparing and ordering in groups of no more than three students. While students practice independently, circulate around the room and continue to ask students how they know to check for understanding.

**Assessment**

- **Questions**
  - (Students are provided three three-digit numbers created by the teacher.) Can you tell me which number is greater, which number is less, and which number is in between? How do you know? Could you place these numbers on the number line provided?
  - (The teacher will provide the students with three or four true or false statements.) Is the following statement true or false? Explain how you know.
    - Example: 324 is greater than 334 (students need to be able to talk about this being false because 334 has one more group of 10 than 324, or they might say 324 is 10 less than 334. Make sure they are talking about the tens and not just saying 334 is one more than 324.)

- **Journal/writing prompts (include a minimum of two)**

- o Write two different three-digit numbers. Tell which number is less. How do you know?"
- o Roll your number generator and create three three-digit numbers. Tell which number is greater, which number is less, and which number is in between. Be sure to include how you know.

- **Other Assessments (include informal assessment ideas)**
  - o Interviewing students helps teachers see whether a student understands the mathematics being taught.
  - o While the teacher is observing throughout the lesson, she should be taking notice of students who are struggling with the mathematical concept.

## Extensions and Connections (for all students)

- Randomly write three different digits on the board, and ask students to create a number greater than the number displayed, less than the number displayed, and equal to the numbers shown.

- Close, Far, and In Between: Put three numbers on the board. Using these three numbers as referents, as questions such as the following and encourage group discussion.
  - Which two are closest? Why?
  - Which is closest to _____? To _____?
  - Name a number between _____ and _____?
  - If these are "big numbers," what are some small numbers?

- Who Am I? Think of a secret number and mark a point on a number line with the starting and end point labeled. Students try to guess your secret number. Place and label each guess on the line.

## Strategies for Differentiation

- Use grid paper to assist students in lining up vertical columns.

- For students who show understanding of comparing with three numbers, you may have students compare four or more three-digit numbers.

- Provide a blank number line for students to place numbers.

- Highlight where to start in each number when comparing or ordering.

- Some students may need to continue using the base-10 blocks, while others could begin to use number cards.

- Struggling students may benefit from the use of hundred charts (200–299 chart or 600–699 chart).

- Create number necklaces. Students in the audience can then compare these numbers and justify their answers.

- Using number necklaces, have a set of students line up from greatest to least or least to greatest. The audience can agree or disagree with the set of students in the front and justify their answer.

- Discuss with students the concept that 358 can be made as 3 hundreds, 5 tens, and 8 ones and also as 2 hundreds, 15 tens, and 8 ones to get students thinking flexible about equivalent numbers.
- Redirection and corrective feedback should be given throughout lesson.