

# Comparing Numbers with Linking Cubes

---

<b>Strand</b>	Number and Number Sense
<b>Topic</b>	Compare numbers
<b>Primary SOL</b>	1.2 The student will <ol style="list-style-type: none"><li>group a collection into tens and ones and write the corresponding numeral</li><li>compare two numbers represented pictorially or with concrete objects, using the words <i>greater than</i>, <i>less than</i>, or <i>equal to</i>.</li><li>order three or fewer sets from least to greatest or greatest to least</li></ol>

## Materials

- Linking cubes
- Base-10 blocks

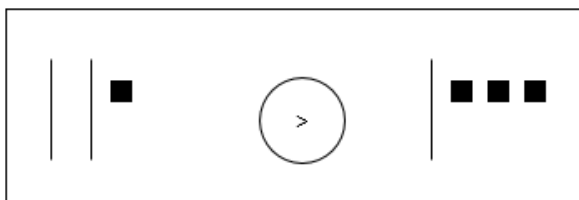
## Vocabulary

*ones, tens, compare, order, greater than, less than, equal to, least, greatest*

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

1. To model this activity, place two large circles on the floor. Gather students around the circles. Put seven linking cubes in one circle and two cubes in another circle. Compare the two sets by asking, “Which set has more? How do you know? How many more does this set have?”
2. Place six linking cubes in one circle and three cubes in another circle. Compare the two sets by asking, “Which set has less? How do you know? How many fewer does this set have?”
3. Place four linking cubes in one circle and four cubes in another circle. Ask questions such as, “Is the number of cubes in circle one greater than the number of cubes in circle two? Is the number of cubes in circle one less than the number of cubes in circle two? How can we compare the two circles?” Discuss the concept of equality.
4. Place nine cubes in one circle and five cubes in circle two. Ask students to think of ways to compare the linking cubes. If no student suggests putting the cubes together to form a tower, then ask, “Could we compare the linking cubes if we put the cubes together to make a tower?” Build the towers, then compare the two numbers using the terms *greater than*, *less than*, or *equal to*. Build several towers using different numbers.
5. Ask, “What if I had two larger numbers, such as 12 and 18? Is there a better way to stack the cubes so that I do not have two tall towers?” Discuss place value and stacking the cubes into groups of tens and ones.

6. Have the students build 12 and 18 by stacking cubes into groups of tens and ones. Using the place value representation, Ask, “Which number is greater/less than? How do you know?” Repeat several times using different numbers.
7. Model building 21 and 13. Ask the students to compare the two numbers. Show them how to represent these two numbers by drawing a picture of 21 and 13, using sticks and dots to represent the tens and ones.



### Assessment

- **Questions**
  - How does representing the numbers with a picture help you compare them?
  - How can you represent the number 30 with pictures?
  - Sam has 32 erasers. Dawn has 37. Who has more and how do you know?
- **Journal/writing prompts**
  - Write the numbers 34 and 43 in your journal. Represent each of these pictorially. Compare and decide which is greater. Explain your thinking.
  - Write the following numbers in your journal: 27, 42, 36. Represent each and then write the numbers in order from greatest to least.
  - In small groups have students practice building numbers using linking cubes and trading them in for base 10 blocks. Have them practice representing their numbers concretely and then pictorially.
- **Other Assessments**
  - Observe as students move through the process of transitioning from the concrete to the representational drawings. Intervene as needed.

### Extensions and Connections (for all students)

- Add a third circle and a third number. Have students build each number using base 10 blocks and compare them. Have students order them from the least to the greatest.
- Explore numbers that reach past the tens and into the hundreds. Build them in a variety of ways using base 10 blocks. Show students how to represent these pictorially.

### Strategies for Differentiation

- Set blocks up in a Ten Frame for comparison.
- Have students trade in linking cubes for base 10 blocks.
- Have students build the numbers using a variety of base 10 blocks. Example-build 21 using all ones. Organize them in groups of 10. Trade the groups of 10 for rods.