# Go and Stop

Grade 4

Lesson 407

Relevant Chapter in the *Digi-Block Comprehensive Teacher's Guide:*
   Book III:   Unit 2-6: Rounding and Ordering Numbers, pages 37-38

## Lesson Overview

Students use blocks to create equivalent representations of three-digit numbers and record each representation in a chart.

## Objectives

Thinking Skills:    Students use classification skills to sort the blocks by size according to place value. They make connections between the different representations of a number.

Mastery Skills:    Students learn to create and record equivalent representations of a number.

## Materials

Each group of students needs:
- 600 single blocks, 60 small holders, 6 medium holders
- 1 Place mat
- 3 regular dice, each a different color
- "Go and Stop" activity sheet

Have students work in groups of 3 to 5. Give each group of students a set of the materials listed above except the dice. **We are going to do this activity once together before you do it on your own.**

- Assign one color die to represent hundreds, another to represent tens, and another to represent ones. For example, the blue die might represent hundreds, the red die tens, and the yellow die ones. Write this on the board.
- Roll the dice and tell students the value of each die. For example, blue is 3, red is 5, and yellow is 1. **What number does this represent?** (In this example the number is 351.)
- **Represent this number on your Place mat with blocks that are packed as much as possible.**
- **Write this number on the first row of your activity sheet.**
- **When I say "Go", unpack your blocks until I say "Stop".** After making sure the students understand, say **"Go".**
- Give the students enough time to unpack and sort some of their blocks and then say "**Stop."**
- **Write down how many of each kind of block you have on the second row of the activity sheet.**
- Record some examples on the board. Have students discuss and explain how each of these representations is equivalent. **What are some of the different ways you found to represent this number?** Write some of those ways on the board. For example, if the number is 351, one way to represent this number is 2 hundreds, 13 tens, and 21 ones. **All of these ways of representing the number are equivalent representations of that number.**
- **How can we check to be sure that the total is always the same?** Have students demonstrate at least two ways to count the blocks in a representation to be sure that it equals the starting number. For example, if students had 2 hundreds, 13 tens, and 21 ones, they could start at 200 and count the tens up to 330, and then add on or count on the ones up to 351.
- Continue alternating saying "Go" and "Stop" until you are sure the students understand the activity.

Pass out dice to each small group. Ask each group to designate one person to say "go" and "stop." That person will not do the activity for the first round.

Go over the following directions for the activity before the groups do the activity on their own. Explain that they will do the activity in their group just as the class did together following these steps:

- **Roll the die.**
- **Represent that number on your Place mat with blocks that are packed as much as possible.**
- **Write the number on the first row of the chart at the bottom of your activity sheet.**
- **When the "Go and Stop" person says "Go", unpack the blocks until the "Go and Stop" person says "Stop." As a guide the "Go and Stop" person should count silently to 20 before saying "Stop."**
- **Write down how many of each kind of block you have on the activity sheet.**
- **Keep going until you have filled in all of the lines on the activity sheet or you have unpacked to all single blocks.**

When a group finishes a round, they will choose a representation to check by counting or adding up all the blocks in one row of the activity sheet to be sure that they equal the starting number. They will show how they counted or added up the blocks on the back of the activity sheet.
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Then they can get another activity sheet, choose a different student to be the "Go and Stop" person, and do the activity again.

Have students share their results with the class. Ask the following questions.

- **Did you always find more than one way to represent a number?**
- **How do you know that all of these representations for one number are equivalent?** Have students demonstrate different methods for counting or to adding up all the blocks to be sure that the representation is equal to the starting number.

- **Will there always be more than one way to represent a whole number with the blocks?** In the discussion point out that there is only one way to represent each of the numbers 1 through 9. There is always more than one way to represent any whole number greater than 9. Your students may need more work with the blocks to come to this generalization.

## Assessment

As the class works, walk around the room observing student behavior.
- Are the students working collaboratively?
- Are they following the directions correctly?

Observe the students as they do the activity.
- Do the students say the number correctly that comes up on the throw of the dice?
- Do the students represent numbers correctly on the Place mat?
- Do they record each representation of a number correctly on the activity sheet?
- Do they understand that all the representations of a number are equivalent?
- Do students count or add up all the blocks to prove that all the representations of a number are equivalent? What methods do they use?

## Extension

- Play a game of "Go and Stop" by packing instead of unpacking. When the dice are thrown, have students put that many single blocks on their Place mat and write the number of single blocks in the ones column on their activity sheet. When "Go" is said, have them pack the blocks and record the number of each kind of block that is on the Place mat each time "Stop" is said. Have them continue the activity until the blocks are completely packed or until they have filled in all of the lines on the activity sheet.
- Have students make posters that show different representations of a number. Have them put one representation on the poster that is incorrect. Have the groups look at the posters one by one to see if they can figure out the incorrect representation on each poster.