



PRACTICE TASK: High Roller

Approximately 2 Days

STANDARDS FOR MATHEMATICAL CONTENT

MCC2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

- a. 100 can be thought of as a bundle of ten tens — called a “hundred.”
- b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

MCCNBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

MCC2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

*****Mathematical Practices 1 and 6 should be evident in EVERY lesson.*****

BACKGROUND KNOWLEDGE

Within these standards, students will extend their understanding of the base-ten system. This includes ideas of counting in tens, and multiples of tens, as well as number relationships involving these units, including comparing numbers and their relative sizes. Students understand multi-digit numbers (up to 1,000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones). Assessments will only include numbers within 1,000. Students will also begin to understand that a digit's place determines its value.

ESSENTIAL QUESTIONS

- Why should we understand place value?
- What are the different ways we can show or make (represent) a number?
- What is the difference between place and value?
- If we have two or more numbers, how do we know which is greater?

MATERIALS

- One die for each child
(8- sided dice and/or 0-9 dice (10-sided) may be used)
- “High Roller” recording sheet

GROUPING

Small Group

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Students work in groups of two - four to play the game. Create a game board or chart with boxes in a row labeled with the place value (see below). Students should place the numbers from their rolls in the four boxes. A student in the group rolls the die four times. After each roll, each student fills in the number rolled in a box on their individual game card to try to make the largest number possible. Once the number is written they may not erase or make a change in the order of their numbers. After all four rolls have been completed, the students compare with their group members to determine who came up with the largest number. The game should be played multiple times for students to begin to develop strategies for number placement. Students should discuss their strategies for playing the game.

Different types of dice could be used. For example, instead of the traditional 1-6 die, students could use 0-9 dice, 0-5 or 5-9 dice or all even numbers or all odd numbers (of course one number would have to be on the die twice for this to work, but then that opens up discussions about probability, which is not addressed in CCGPS until middle school). After the game is played several times, students should discuss what they figured out about playing the game. Students should discuss their strategies for playing the game. Also, students should discuss what problems they encountered when playing the game. Typical problems include rolling lots of small numbers and deciding where to place them, rolling the “middle” numbers (a 3 or 4 on a traditional die) and trying to decide where to place it.

Ask questions such as:

- What do you do when you roll the smallest number on the die? Why? What if that place value spot is already taken?
- How do you decide where to place the “middle” numbers on the die?
- Which numbers are easy to place? Why?

Observe students to see if they have a strategy. Have them explain as they are playing so any misconceptions can be addressed. Allow the students to play a couple of practice rounds if needed.

Variation: As students become familiar with larger numbers and their relative value, have students write out the number in expanded notation. For example, if a student rolls a “3” and they choose the hundreds column, they should write out three hundred in the space on the recording sheet.

FORMATIVE ASSESSMENT QUESTIONS

- What do you do when you roll the smallest number on the die? Why? What if that place value spot is already taken?
- How do you decide where to place the “middle” numbers on the die?
- Which numbers are easy to place? Why?

DIFFERENTIATION

Extension

- Have students write about the strategy they use to play the game. Encourage them to write all they can about their strategy.
- Students could also try to make the smallest number by playing the game “Low Roller.”
- Players could keep score of who had the biggest or smallest number during the game.
- Students use tally marks to record the number of times they had the biggest number.
- Make a graph showing how many times each player has the highest number. At the end of play the groups would share their findings with the class.
- Students could be required to write the word name for each number they built using both words and expanded notation.

Intervention

- Use dice that have numbers or cover dots with stickers with numbers written on them. Allow students to practice rolling the dice and making different combinations with two dice first. Have them write these down so they can visualize the difference. Add a third die and repeat, writing down the combination before rolling again. Eventually add a fourth die.

Name: _____



High Roller



Round	Thousands	Hundreds	Tens	Ones
1.				
2.				
3.				
4.				

Compare two numbers from above with the symbols $<$, $>$, or $=$.

_____ ○ _____

Make a 4 digit number that is larger than your largest number.

Make a 4 digit number that is smaller than your smallest number.

On the back of this paper, explain your reasoning. How do you know the numbers you created are smaller or larger?