CULMINATING TASK: Carol's Numbers

Approximately 2 Days (Adopted from NYC Department of Education)

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).

MCC2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.

MCC2.NBT.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

By this point in the unit, students have had experience:

- understanding the value placed on the digits within a three-digit number
- recognizing that a hundred is created from ten groups of ten
- using skip counting strategies to skip count by 5s, 10s, and 100s within 1,000
- representing numbers to 1,000 by using numbers, number names, and expanded form
- comparing multi-digit numbers using >, =, <

ESSENTIAL QUESTIONS

- How can place value help us tell which of two or more numbers is greater?
- Why should you understand place value?
- What are different ways we can show or make (represent) a number?
- What is the difference between place and value?

MATERIALS

- Assessment Carol's Number's Part 1
- Assessment Carol's Number's Part 2

GROUPING

Individual

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSON

This culminating task represents the level of depth, rigor, and complexity expected of all second grade students to demonstrate evidence of learning of standards stated above. Students will show their understanding of manipulating digits in each place value position. Students will also be placing numbers on an open number line. Skip counting is then addressed, if your students have not had adequate practice skip counting by any number refer back to the Number Hop task. Finally, students will be comparing numbers and writing numbers in expanded form, refer back to the Base Ten Pictures task and What's my Number for students that need more clarification on these skills.
(Task adopted from New York Department of Education, Common Core Aligned Task with Instructional Supports, http://schools.nyc.gov/NR/rdonlyres/CAC1375E-6DF9-475D-97EE-E94BAB0BEFAB/0/NYCDOEG2MathCarolsNumbers_Final_020112.pdf)

Assessment should be administered on two separate days.

FORMATIVE ASSESSMENT QUESTIONS

- What strategies do you use to compare two numbers?
- What is different about counting forwards and counting backwards? What is similar?

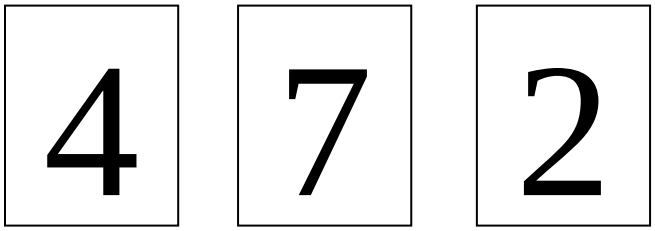
***See sample grading rubric that follows assessment.**

For examples of scored student work, please visit:
http://www.scboces.org/17621092392658243/lib/17621092392658243/2nd_Grade_-_Carols_Numbers.pdf

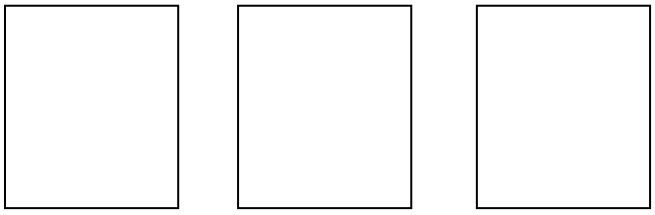
Name _____

CAROL'S NUMBERS - Part I

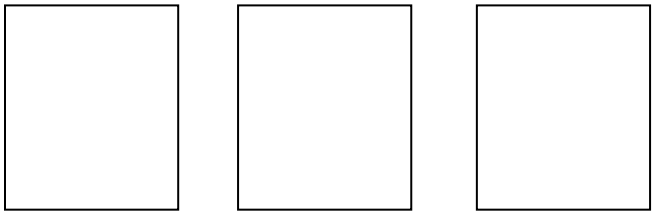
Carol has three number cards.



1. What is the largest three-digit number Carol can make with her cards?



2. What is the smallest three-digit number Carol can make with her cards?



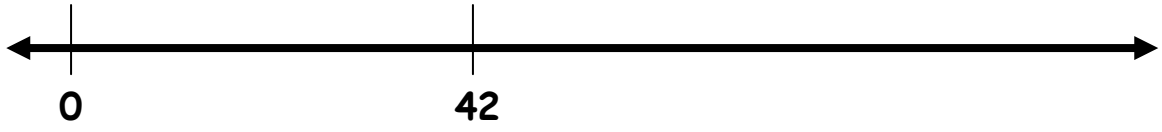
Explain to Carol how she can make the smallest possible number using her three cards.

_____

_____

_____

Carol's teacher drew a number line on the board.



3. About where would 85 be? Place 85 on the number line where it belongs.

4. About where would 21 be? Place 21 on the number line where it belongs.

5. About where would 31 be? Place 31 on the number line where it belongs.

Tell Carol how you knew where to place 31 and why.

Name: _____

Carol's Numbers - Part II

Carol likes to jump rope. When she jumps, she likes to skip count by 5's, 10's and 100's.

If Carol skip-counts by 5's, how many jumps will it take to reach 45? _____

How do you know?_____

_____

_____

Skip count by 10's - What comes next?

32, _____, _____, _____, _____, _____, _____

Skip count <u>backwards</u> by 100's - What comes next?

920, _____, _____, _____, _____, _____, _____

When Carol skip counts by 100, which digit changes and which digits stay the same? Explain your answer.

_____

_____

_____

Carol also likes to draw with sidewalk chalk.

She wrote the following numbers. Use the symbols <, >, and = to compare the numbers that she wrote.

345 ◯ **342**

99 ◯ **102**

580 ◯ **508**

Help Carol write in expanded notation, write the following numbers in expanded form. (ex. 496 = 400 + 90 + 6)

672 = _____

999 = _____

205 = _____

Write 500 + 5 in standard form. _____

How would you write 205 with words?

_____

What is the value of 7 in 672? _____

What is the value of 6 in 672? _____

What is the difference between place and value? _____

_____

_____

Grade 2 Math: Carol's Numbers Rubric

Performance Level Descriptions

Performance is reported at four levels: 1 through 4, with 4 as the highest.

Level 1: Demonstrates Minimal Success

The student's response shows few of the elements of performance that the tasks demand as defined by the CCGPS. The work shows a minimal attempt on the problem and student struggles to make a coherent attack on the problem. Communication is limited and shows minimal reasoning. The student's response rarely uses definitions in their explanations. The student struggles to recognize patterns or the structure of the problem situation.

Level 2: Performance Below Standard

The student's response shows some of the elements of performance that the tasks demand and some signs of a coherent attack on the core of some of the problems as defined by the CCGPS. However, the shortcomings are substantial and the evidence suggests that the student would not be able to produce high-quality solutions without significant further instruction. The student might ignore or fail to address some of the constraints of the problem. The student may occasionally make sense of quantities in relationships in the problem, but their use of quantity is limited or not fully developed. The student response may not state assumptions, definitions, and previously established results. While the student makes an attack on the problem, it is incomplete. The student may recognize some patterns or structures, but has trouble generalizing or using them to solve the problem.

Level 3: Performance at Standard

For most of the task, the student's response shows the main elements of performance that the tasks demand as defined by the CCGPS and is organized as a coherent attack on the core of the problem. There are errors or omissions, some of which may be important, but of a kind that the student could fix, with more time for checking and revision and some limited help. The student explains the problem and identifies constraints. The student makes sense of quantities and their relationships in the problem situations. S/he often uses abstractions to represent a problem symbolically or with other mathematical representations. The student response may use assumptions, definitions, and previously established results in constructing arguments. S/he may make conjectures and build a logical progression of statements to explore the truth of their conjectures. The student might discern patterns or structures and make connections between representations.

Level 4: Achieves Standards at a High Level

The student's response meets the demands of nearly all of the tasks as defined by the CCGPS, with few errors. With some more time for checking and revision, excellent solutions would seem likely. The student response shows understanding and use of stated assumptions, definitions and previously established results in constructing arguments. The student is able to make conjectures and build a logical progression of statements to explore the truth of their conjecture. The student response routinely interprets their mathematical results in the context of the situation and reflects on whether the results make sense. The communication is precise, using definitions clearly. The student looks closely to discern a pattern or structure. The body of work looks at the overall situation of the problem and process, while attending to the details.