SCAFFOLDING/CONSTRUCTING TASK: The King's Counting Crew *Approximately 2-3 days*

CONTENT STANDARDS ADDRESSED

MCC1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

a. 10 can be thought of as a bundle of ten ones — called a "ten."

b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

MCC1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

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.

BACKGROUND KNOWLEDGE

Students should have experience working with numbers up to 99 in previous tasks. Students should be able to build numbers with an understanding of place value in tens and ones. Students should demonstrate an understanding that the digits 0-9 are used to express or represent an amount or number and the placement of these digits determines the value or size of the number. If your students have not had previous experience using tally marks or writing place value equations (For the number 45, 40 +5 =45), you will need to provide more experiences with these ideas.

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ESSENTIAL QUESTIONS

- Why do we need to use two digits for recording certain amounts or certain numbers?
- How do we know when we are going to need two digits?
- How do we decide what two digits to use?"
- How can making equal groups of ten objects help us count larger quantities?
- What are some strategies that help me count?

MATERIALS

- "The King's Counting Crew -Tens and Ones" student task sheet
- "The King's Counting Crew - Game" student task sheet
- Two 0-9 dice for each pair of students or a 0-9 spinner
- Base ten blocks (Tens and ones for partners)
- Large foam dice, if available (if not, they can be made by following directions, here: http://www.education.com/activity/article/Make_Giant_Dice_kinder/
- *The King's Commissioners* by Aileen Friedman or similar book
- Chart paper
- Math journal or scratch paper

GROUPING

Large group, Partners

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Scaffolding Task Part I
Gather students together in a common area. Give partners a large plastic bag full of one household item (one group might get buttons, one group might get beans, one group might get macaroni noodles, but they should get a collection of the same items in their bag). These should be prepared prior to the lesson. They will be used as you read the story. Read *The King's Commissioners* by Aileen Friedman or similar book. This book illustrates counting in different ways. While reading the story, have students manipulate the situations that occur in the story using tally marks. ***Pause reading on the page when the daughter comes in to greet her father.*** At this point, refer to table 1 in this task. Read off the names of all 47 commissioners to the students, having them place a tally mark for each commissioner mentioned (please allow enough time for students to make a tally mark). The students may use scratch paper to write the tallies. Divide the students into 2 groups. One group will circle the tallies in groups of two, and the other will circle the tallies in groups of five. Ask the students to count how many commissioners the king has. Compare answers and then ask if there is another way that we could count them. Continue reading the book to discover how the king's daughter counted the commissioners.

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Scaffolding Task Part II

Have a student volunteer to come up and be your partner. If you have large sponge dice or foam dice, this would work better than regular dice for the demonstration. The teacher will roll one number die, and the student volunteer will roll the other die. Put the dice together to create a two digit number. Explain that the **digit** on the right represents how many ones are in the two digit number. Select the amount of blocks that represent the ones place value. Put them on the work mat under the word ONES. Explain that the **digit** on the left represents how many groups of ten are in the two digit number. Select that many tens sticks, put them on the work mat under the word TENS. Students will complete the recording sheet by rolling two dice to create a 2 digit number, modeling the number with base 10 blocks, identifying groups of tens and individual ones and drawing the model. Encourage students to use sticks and dots when drawing the model. Students may become frustrated trying to draw an exact image of the base 10 blocks. Example of what they can do: 34 

Ask the following questions,

- What two digit number do we have?
- What digit is in the tens place?
- What digit is in the ones place?
- What do these digits represent?
- How many groups of tens and ones did we need to represent this number?
- How many tens do I have?

Example of classroom discourse for place value discussion

- If a student rolls a 3 in the tens place and 4 in the ones place, then the number 34 is created. Ask a student, **"If I count out all the ones in each ten stick, how many will we have?"** (*30*) "**Why did I only write a 3 in the tens place, instead of 30?"** (*Because while are more than 30, there are only three groups of ten. There are 4 ones also, so I cannot put 30 in the tens place. 30 in the tens place would actual represent 300(30 groups of 10) and 3 in the tens place is a much smaller amount than 300. We know that the tens place can only hold the digits 0-9, just like the ones place! I know that the number 34 is a two digit number and in each place a digit represents a specific value.*) **"Could I count these tens sticks by ones?"** (*Yes)* **"Then why do I group them by tens?"** *(Because it is easier to count in groups, remember the story and the way we counted our objects.) IMPORTANT:* The number 24 can be represented as 24 ones or 2 tens and 4 ones, but is NOT the same as 24 tens.

Scaffolding Task Part III

Students will need a math journal or piece of paper to complete this activity. Each student will roll two dice and create a 2 digit number. Have the students record the number in their math journal in a variety of ways. For example, the student could write 46 as 40 +6, as well as 4 tens and 6 ones, as well as 20+ 20 +6, or 16 +30 etc. Provide base ten blocks or cubes for students to manipulate different representations. Teacher instruction should guide the students to develop an understanding of multiple ways to create a 2 digit number. Allow students time to practice with several numbers.

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Constructing Task Part IV

Distribute "The King's Counting Crew" student task sheets. Demonstrate the task with a student volunteer. Students will work in pairs but each student will need their own recording sheet. For each roll the students will create 2 different numbers. Example: student one rolls a 7 and 5. Student one will choose to create representations for one number and the partner, student two, will complete the other number. Player 1 will complete 75 and player 2 will complete 57. They are both completing roll 1 at the same time. Next they start roll 2. Student two will roll the dice and choose the number to represent. Student one will complete representations for the remaining number. Students must create a 2 digit number, the tally mark picture, the tens and ones picture, and an equation for each roll. When students are writing the equation they should express the total number as a decade number plus individual ones. Example: the number 62 should be represented as the equation 60+2=62. The teacher should lead a discussion about writing a 2 digit number in expanded notation in the previous activity. Allow students several experiences practicing and modeling this concept. As you are walking around asking students about their work, watch for misconceptions (example: students saying that 53 is "35" – or that the "3" is in the tens place, 5 in the ones place). Allow 3 or 4 partners to share one of their examples with the class. The teacher could also assess students individually as needed using the assessment example included.

FORMATIVE ASSESSMENT QUESTIONS

- What two digits are used to create the number _____?
- How many tens and ones are needed to write a given two-digit number?
- Can you represent the number _____, using sets of tens and ones? (Offer a variety of manipulatives such as ten frames, stacks of Unifix cubes, dimes and pennies)
- Can you represent two digit numbers in tally pictures?
- Can you represent a two digit number in an expanded notation? (34, 30+4=34)

DIFFERENTIATION

Extension

- Represent the number 46 as was done in the story. How many groups of 2 can you make with the number 58? How many groups of ten can you make? How many groups of five can you make? Continue with more numbers as needed.

Intervention

- Students will work with numbers 11–39, discussing the number of tens and ones in these two-digit numbers.

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Table 1

The Commissioner of…….

Spilt Milk	Hiccups	Book Bag Finding	Face Wiping	Dirt Removal
Lost Homework	Vegetable Eating	Pencil Sharpening	Teeth Brushing	Snow Shoveling
Things that Bump in the Night	Battery Charging	Dish Washing	Book Returning	Umbrella Holding
Flat Tires	Bug Squishing	Trash Removal	Bedtime Story Reading	Toy Locating
Chicken Pox	Mosquito Slapping	Bed Making	Dog Bathing	Video Games
Foul Balls	Dog Walking	Homework Checking	Tree Climbing	Transportation
Scary Nightmares	Lawn Mowing	Lunch Money	Recycling	Late Arrivals
Mismatched Socks	Hair Brushing	Card Shuffling	Money Counting	
Wrong Turns	Clothes Folding	Meat Cutting	Nose Blowing	
Skinned Knees	Toilet Scrubbing	Lunch Packing	Alarm Clocks	

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"The King's Counting Crew" Place Value Organizer

Tens	Ones

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The King's Counting Crew
PART II

Write the number that you rolled (model with base 10 blocks on your desk)	How many groups of ten?	How many ones?	Draw a base 10 model of the number

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The King's Counting Crew Part III Name_____

Roll 1	Number made	Tally Mark Picture	Tens and Ones Model	Equation
Roll 2	Number made	Tally Mark Picture	Tens and Ones Model	Equation
Roll 3	Number made	Tally Mark Picture	Tens and Ones Model	Equation
Roll 4	Number made	Tally Mark Picture	Tens and Ones Model	Equation

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Roll 5	Number made	Tally Mark Picture	Tens and Ones Model	Equation
Roll 6	Number made	Tally Mark Picture	Tens and Ones Model	Equation
Roll 7	Number made	Tally Mark Picture	Tens and Ones Model	Equation
Roll 8	Number made	Tally Mark Picture	Tens and Ones Model	Equation

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Example of Sample Assessment for Students for "The King's Counting Crew"

Use the following example questions with students, following "The King's Counting Crew" task. This should be done one on one with students, so that you can make observations regarding their understanding of place value.

Give a student 2 dice to roll. After the student rolls the dice, ask the following questions:

1. What 2 digits did you roll? ____ and _____

2. Make a 2 digit number. What was the first two digit number you made?

   _____

3. Make another 2 digit number. What was the second two digit number you made?
   _____

4. Draw a tally mark picture representing one of these numbers. Which number did you represent? _____

5. Draw a tens and ones picture modeling the other number. Which number did you represent? _____

6. Create 2 number sentences using your 2 numbers.

Additional Teacher Comments:

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