Lesson Title: Number Sense- Place Value for Numerals
Grade: 2

Curriculum Area: Mathematics
Grade Level: 2
Time Required: 100 minutes (3lessons)

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Instructional Groupings: Group of 3

NCTM
Content Standards: Numbers and Operations
Process Standards: Use multiple models to develop initial understandings of place value and the base-ten number system.

NB Mathematics Curriculum Grade Four
GCO: Number (N) Develop number sense

SCO: N7: Illustrate, concretely and pictorially, the meaning of place value for numerals to 100. [C, CN, R, V]

NETS-S Technology Standards
Creativity and Innovation
Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
Communication and Collaboration
Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

Overview
This lesson will span 3 classes and allow students to create a short podcast in response to a mathematical 'challenge' assigned by the teacher. Students will work in groups of 3 to complete their challenge and then create a short podcast to play for the class about what they learned the following day. Students are encouraged to use creative ways (using mathematical logic) to solve their challenge. The first day of this lesson will consist of a review of number sense from 1-100 and the distribution of the challenges. Students will be given time to work in their teams to solve their challenge and discuss how they are going to create their podcast to explain to the class how they came to their solution. The second math class will be dedicated to allowing the students to record their podcast, add music etc. The final class will begin with the playing of everyone's podcast followed by a discussion about what students have learned. Students will be formally assessed based on the process by which their group solved their challenge and the quality of their final product.

Purpose
The purpose of this lesson is for students to practice and apply skip counting by putting it in context. Students will also realize that skip counting is not always the most efficient/easiest way to count things (for example in for challenge #4 Count the number of

letter 'A's there are on the posters in the room, it would make it more challenging to count this using the skip counting strategy). Students will learn when it is most useful to skip count.

Technology Resources needed (hardware and software)
To create the instructional video:
- 6 notebook computers
- GarageBand (or voice recorders)
- ITunes

To show to video:
- SmartBoard

Procedure
Before the Lesson
The teacher must prepare the necessary materials for the lesson:
- Computers (with GarageBand)
- Challenge cards for the students

Activation of Prior Knowledge (10 minutes)
To activate prior knowledge for this activity the teacher will facilitate a SmartBoard lesson to review skip counting in 2's, 5's and 10's. Please see attached SmartBoard lesson for further instruction. Please see the following link to access the SmartBoard lesson: http://exchange.smarttech.com/details.html?id=1a910706-71f3-4af9-a70d-05c501bd710b

Learning Activity – 30 minutes (5 minutes instructions, 25 minutes group work):
- The teacher explains that students have developed a number of challenges for the students to complete. Students will work in groups of three to complete their challenge (emphasize that there is more than one right way to complete the challenges). It is important that students' work in groups and everyone agrees on the solution to the challenge- it is a TEAM activity.

The challenges to be distributed to the groups are as follows:
1. Find the easiest and fastest way to count all the books in the leveled book baskets in the classroom.
2. What is the quickest way to count all the markers in the marker box? (You must actually count them)
3. Count all the orange pieces of paper in the classroom (don't forget the ones on the shelf).
4. Count the number of letter 'A's there are on the posters in the room.
5. How many tiles on the floor are there?
6. Find the quickest way to count how many paper clips are in the basket on the teachers' desk.

- Once your group has found/agreed on the simplest solution to your challenge instruct students to raise their hands.

- The teacher will then bring the group a notebook computer with GarageBand (or a voice recorder) to use. Groups will create a short podcast describing both their challenge and the process/different ways to solve their challenge. At this point the teacher will provide the group with a list of guiding questions to get them started. Their podcast should be a minimum of 2 minutes (max of 5) and group members should all have the opportunity to say something. Suggestions for ways to present their findings: News report, radio show, interview, story etc. Please see assessment rubric for project guidelines and expectations.

- Remind students that their podcast is going to be shown to the class!

Consolidation of Knowledge and Reflection 30 minutes:
This will take place on the third lesson day when students present their podcasts to their peers. This will allow students to see the different strategies that people used to solve their challenge. The listening of the podcasts will be followed by a class discussion about what was the most efficient way of counting large amounts of numbers? Were there some things that were harder to count in groups than others? Was it easier to count things by grouping them in 10's? Why is that so?

- The purpose of this discussion is for students to realize that it is easiest to count large quantities in groups/clusters of 10. This eliminates the potential of miscounting something. Additionally, students should take away from this activity that 10 groups of 10 equals one hundred/ 34 is not just 3 tens and 4 ones, but it could also be 2 tens and 14 ones. Finally, students should understand by the end of this discussion that skip counting is not always the easier solution to counting things- refer to challenge #4 to discuss why skip counting was ineffective/challenging in this situation.

Assessment Method
Podcasts will be marked according to the attached rubric. Criteria include: Presentation of the Challenge (i.e. Is the purpose of the podcast clear?), Creativity and use of Technology (i.e., Did the students enhance their videos by adding music and sound?), Participation (i.e. Did the students work together and discover the simplest solution to their counting challenge?).

Please see attached rubric.