

### Stage 1: Identify Desired Results

#### Established Goals:

#### N 2.1

Demonstrate understanding of whole numbers to 100 (concretely, pictorially, physically, orally, in writing, and symbolically) by:

- representing (including place value)
- describing
- skip counting
- differentiating between odd and even numbers
- estimating with referents
- comparing two numbers
- ordering three or more numbers.

[C, CN, ME, PS, R, V]

**(c)** Pose and solve problems that explore the quantity of whole numbers to 100 (e.g., a student might wonder: “How many pets would there be if everyone in the class brought their pets to class”).

**(e)** Represent quantities to 100 using non-proportional materials (e.g., stir sticks and popsicle sticks, and coins) and explain how the representation relates to the numeral used to represent the quantity.

#### Understandings:

I can explore numbers up to 100.  
I can use different materials to help me explore numbers up to 100.  
I can answer questions using numbers up to 100.

U

#### Essential Questions:

How can we use different materials to represent different number quantities?

How can we use materials to help us solve quantity problems?

*Students will know...*

How to use different materials to represent quantities up to 100.

How to solve mathematical problems using a variety of materials.

K

*Students will be able to...*

Create groups of materials that represent specific quantities.

Answer problems using manipulatives to guide their thinking.

D

#### Instructional Strategies:

Cooperative Learning – the students will work with a partner to understand quantities using different materials.

Exploration – the students will be able to explore different ways to count quantities in math using a variety of manipulatives.

Inquiry – students will be asked open ended questions throughout the lesson that will facilitate deeper thinking.

### Stage 2: Determine Evidence for Assessing Learning

#### Formative Assessment

- Observe students individually and in their group as they work with manipulatives to create different quantities.
  - This can be done through: asking questions, class discussions, student volunteers to show work, etc.
  - Provides students with instant feedback on how their understanding
- Exit slip: students will be required to hand in completed group worksheet
  - Written feedback will be given the following day

### Stage 3: Build Learning Plan

<p><b>Set (Engagement):</b> <span style="float: right;"><b>Length of Time: 5-10 minutes</b></span></p> <p>Read the story Count to 100 by Felicity Brooks. Engage the students by getting them to count with you.</p> <p><b>ASK:</b>  <b>Can you count with me students?</b>  <b>How many cars do you see?</b>  <b>How many windows are in each house?</b></p> <p>The book also provides many questions to help the students stay engaged.  Use the book to show how we can use different objects to help us learn quantities.</p>	<p><b>Materials/Resources:</b></p> <ul style="list-style-type: none"> <li>- Count to 100 by Felicity Brooks</li> <li>- Plastic Cups (5 for each pair)</li> <li>- Pom poms</li> <li>- Popsicle sticks</li> <li>- Beads</li> <li>- Counter blocks</li> <li>- Paper clips</li> <li>- Group work - Exploring Quantities Worksheet (attached below)</li> </ul>
<p><b>Development:</b> <span style="float: right;"><b>Time: 30-40 minutes</b></span></p> <p>Have the students pair up (make sure they are sitting at the same table or move their desks together).  Give each group cups full of pom poms, popsicle sticks, beads, counter blocks, and paper clips.  Start out by having the pairs of students work together to count how many of each item they have.</p> <p><b>ASK: How many pom poms does your group have? Popsicle sticks? Beads? Counter blocks? Paper clips?</b></p> <p>Give each group time to count and share with the class their amounts for each.  Once the students have determined how much of each they have, point out that all these different materials can be used to help us see how much a number is.  Write a number on the board (ex. 25) and have the students work with their partner and use their materials to create that number.</p> <p><b>ASK: Can a group show me what this number looks like using pom poms? Using popsicle sticks?</b>  <b>Why does the pile of 25 beads look smaller than the 25 popsicle sticks?</b></p> <p>Show students different strategies that could help them keep track of quantities (example: 25 pom poms can be made by making five groups of 5 pom poms or two groups of 10s and one group of 5s).  Practice this skill of exploring quantities up to 100 with materials until the students can do so without assistance.  Example numbers to try: 30, 46, 57, 72.</p> <p>Once students have demonstrated an understanding, hand each group an Explore Quantities Worksheet (worksheet attached).  You can give the students extra paper to draw if needed.  Read through and explain the worksheet to students, you can even do the first question together as a big group.  While students are working, walk around and ask open ended questions.</p> <p><b>ASK: How did you know this was a group of 71 pompoms?</b>  <b>What did you use to help find this answer?</b>  <b>Is there another way you could have found this answer?</b></p>	<p><b>Possible Adaptations/ Differentiation:</b></p> <ul style="list-style-type: none"> <li>- Provide more examples at the start of the development stage.</li> <li>- For students who are struggling, you could give them less materials to work with and smaller quantities.</li> <li>- Have students in partnerships that will foster both members to grow and learn from one another.</li> <li>- Have extended time to practice and count with different materials.</li> <li>- Work on the worksheet as a class, having discussion as we go.</li> </ul>
<p><b>Closure:</b> <span style="float: right;"><b>Time: 5-10 minutes</b></span></p> <p>Make time at the end for students to share their methods and findings to the class.  Have groups hand in their Exploring Quantities Worksheet as an exit slip, give written feedback next day.</p>	<p><b>Management Strategies:</b></p> <ul style="list-style-type: none"> <li>- Give each student in the pair a role: counter and cleaner, recorder and counter, recorder and reporter, etc.</li> <li>- give materials to students once instructions have been said</li> </ul>
<p><b>Safety Considerations:</b></p> <ul style="list-style-type: none"> <li>- choking hazard</li> </ul>	

**Stage 4: Reflection**

*Professional Development Goal is...*

Giving my students some control over their own learning. Instead of me giving students the answers to the questions we will go through in this lesson, I will give them time to think and work with their partner. This will help them become independent thinkers and learners and will also help me to facilitate deeper and critical thinking within my classroom.

Names .....

# **EXPLORING QUANTITIES**

Use your materials to help you answer these questions.

**Draw 42 popsicle sticks**

**Draw 71 pompoms**

**Draw 100 using all of your materials**

**If each student (25) brought one paper to school, how many papers would we have?**

**If every grade (12) brought 2 crayons to school, how many crayons would there be?**