

## Number Talks: Choral Counting Lesson Protocol

This instructional routine asks teachers to engage a group of students in a focused exploration through the use of a counting sequence as represented visually in a predetermined number grid. The teacher leads the class in a count, teaching different concepts and skills by deciding what number to start with, what to count by (e.g., by 10s, by 19s, by  $\frac{3}{4}$ ), whether to count forwards or backwards and when to stop. As children engage in the count, the teacher publicly records the count on the board, having thought ahead of time how to record it, stopping at particular times to elicit children's ideas for figuring out the next number and to discuss what patterns are occurring in the count and why. This activity is targeted to help children learn how to apply computational strategies, notice and use patterns to make predictions, and reason through why patterns are occurring. This activity is not simply about rote counting. Instead, the purposeful recording and choice of the counting task coupled with discussions about patterns that emerge as the count proceeds engages students in mathematical sense making.

### **Step 1: Choose a number to count by and the structure of the number grid**

- Decide which direction to count (forward or backwards) and what number to start with.
- Decide how many rows and columns you will record in a number grid. Number of rows and columns should be the same.

### **Step 2: Introduce the task to the students and anticipate pacing**

- Let students know what number you will be counting by and what number they will start with.
- Tell students that they all will count out loud together and you will record the count on the board using an number grid
- Anticipate patterns before hand and what questions you will ask to make students' thinking visible for the whole class.
- Decide what management device you want students to use to signal that they have notice one or more patterns. Be sure to consider how your management routine conveys messages about competence, status, competition, speed, and so on.

### **Step 3: Begin the Choral Count and Record Count**

- Signal the students to begin chorally counting
- While the class counts record the count in an intentional way on the board based on previous determination of. How many columns and rows will the number grid contain?

### **Step 4: Interrupt the Count and Monitor Participation**

- Stop the count at strategic points to discuss patterns students are noticing
- Pose the following questions to get students to assess student thinking:
  - What patterns do you notice?
  - How do you know what the next number will be?
  - Will \_\_\_\_ appear in the count and how do you know?
- Provide a management device for students to hold each other accountable for counting

### **Step 5: Finish the Count and Engage Students in Mathematical Reasoning**

- Pose the following questions to students to assess and advance their thinking with the purpose of eliciting student thinking:
  - What pattern did you notice? How did you figure that pattern out?
  - Do the pattern work for all numbers if we continue counting? How do you know?

**Step 6: Highlight the Big Ideas and Close the Task**

- Discuss the patterns and mathematics ideas that this choral count represented visually as number grid.
- Make explicit the mathematical ideas that this choral count highlighted.

**Challenges That Might Occur**

- Children count incorrectly.
- Many children seem not to be participating.
- You ask for patterns and get no response.
- Children are not seeing why the patterns work for all numbers or struggle to generalize the pattern and how it works.