2.NBT Choral Counting

Alignments to Content Standards: 2.NBT.B.8

Task

Materials

- Chart paper
- Marker

Actions

The teacher will begin by asking a student volunteer to show 3 using base-ten blocks. The teacher will then record 3 on the chart. The teacher will then ask how students can show the number that is 10 more and invite another student volunteer to build 10 more with cubes. Student may add 10 individual units or a ten stick. The goal is for students to move from counting ten units to counting one unit of 10, and to connect the concrete representations of the numbers with abstract oral counting. The teacher will then record 13 on the chart and continue this process, asking students “What’s 10 more than ___?” and have student volunteers show 10 more with the base-ten blocks. At some point, a student will likely use a ten stick instead of ten ones; when this happens, the teacher can help the students see this is a more efficient strategy. If no students add a ten stick, the teacher can help them make this transition.

The goal of writing the numbers on the chart paper as shown below is to record the numbers in a way that makes the "add ten" pattern visible for students. By recording 10 numbers in a row, students may see patterns in tens as they look across, and also hundreds as they look vertically.

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>13</th>
<th>23</th>
<th>33</th>
<th>43</th>
<th>53</th>
<th>63</th>
<th>73</th>
<th>83</th>
<th>93</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>113</td>
<td>123</td>
<td>133</td>
<td>143</td>
<td>153</td>
<td>163</td>
<td>173</td>
<td>183</td>
<td>193</td>
<td></td>
</tr>
</tbody>
</table>
Throughout the process, the teacher should pose questions to elicit student thinking and understanding of the concept of 10, 100, and patterns within the structure of our base ten number system. Questions may include:

- **What do you notice?**
- **Why do you think that is?**
- **What number will be next? How do you know?**
- **What's happening to the digit in the tens place? Why?**
- **What's happening to the digit in the ones place? Why?**
- **Why do the numbers build like that?**
- **What's the relationship between _ and _?**
- **What patterns do you notice looking horizontally?**
- **What patterns do you notice looking vertically?**
- **What number will be below _? How do you know?**
- **What number will be at the end of the fourth row? How do you know?**

Closing: Ask students, “How might this task help you solve 38+10? 124+10? Support students in making connections to choral counting activity and mentally adding or subtracting 10 (or 100) from any given number 100-900.

**IM Commentary**

This task was designed to support students in developing the concept of ten more and ten less, moving from concrete representation to understanding of the unit of ten within ten more and ten less. Students will also understand the value of ten(s) within any number as they mentally add or subtract 10 from a given number 100-900.

Teachers may want to repeat the lesson a second time starting with a different number, such as 8. Then they could compare the two charts and look for similarities and differences. Sometimes students can have one experience and not be able to generalize. Having multiple experiences with the same concept helps students make the connection that this isn't just about 3, 13, 23...it is about the patterns that all
numbers follow.

Choral counting can be a frequent activity in classrooms at all levels. Select a starting number and count by number, as well as how numbers will be organized as they are charted to support students in seeing structure and patterns in the number system. Students should count both forward and backward. Once students master counting by 10s, they can count by other numbers.

The Standards for Mathematical Practice focus on the nature of the learning experiences by attending to the thinking processes and habits of mind that students need to develop in order to attain a deep and flexible understanding of mathematics. Certain tasks lend themselves to the demonstration of specific practices by students. The practices that are observable during exploration of a task depend on how instruction unfolds in the classroom. While it is possible that tasks may be connected to several practices, only one practice connection will be discussed in depth. Possible secondary practice connections may be discussed but not in the same degree of detail.

Although this particular task can be linked to several of the Mathematical Practice Standards, the focus of this discussion will be on Mathematical Practice 7, Look for and make use of structure. During this activity, second graders are actively connecting counting to physical representations and to finding patterns of “adding ten” and “adding 100.” The teacher guides these connections through questioning as described in the commentary. “What do you notice?” “Why do you think that is?” “What's happening to the digit in the ones place? In the tens place? In the hundreds place? Why do numbers behave like that?” “What is the relationship between ones and tens? Between tens and hundreds? Between hundreds and ones?” “What patterns do you notice?” Students develop an understanding of our base ten structure through pattern-recognition and pattern-generalizing activities and are able to apply this understanding to solve other problems.

**Solution**

Throughout the task, students will identify the number that is 10 more in the counting sequence. Through teacher questioning, some ideas that may emerge from the experience include:
• All of the numbers end in the three.
• If we don’t look at the 3 in each number, the numbers are counting, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
• Numbers in the ones place are not changing.
• Numbers in the tens place are changing and growing by 1.
• When looking at the columns, the numbers grow by 100.
• When looking at the columns, the digits in the ones and tens places do not change but the digits in the hundreds place increase by 1.
• The numbers grow by 100 when looking down because there are 10 numbers in each row and 10 groups of 10 is 100.
• 213 will come next because it is 10 more than 203 and 113 is above it.
• The next row will begin with 303 because that is 100 more than 203.
• 393 will be at the end of the fourth row because if each row is 100 more, 193+100=293, 293+100=393.

Closing:

38+10=48

124+10=134

I can use what I know about counting to find 10 more than any number. I can start at the given number and count by tens. I also noticed that when adding 10 more, the only number that changed is the number in the tens place so I know that 10 more than 124 is 134.