

Sequencing Numerals 1-20

Student Probe

Give students numeral cards 1-20. Make sure they are in a random order. Ask the student to sequence the cards from 1-20 in a line across the desk. If a student has difficulty, continue with this lesson.

Lesson Description

Students fill in the missing number cards on increasingly difficult number lines using the CLOZE method.

Rationale

In order to compare numbers and develop operational sense, students must be able to identify and place numerals in a correct sequence from smallest to largest. They must also be fluent with identifying numbers that come before or after a given number. Students need to develop a mental number line to use when determining which number is larger or smaller.

Preparation

Read the lesson including the link to the examples of CLOZE number lines. Gather the materials to create various number lines. Various materials can be used: string, yarn, or adding machine tape for the line; clothes pins, paper clips or colored sticky dots for the increments indicating where number cards are to be placed. Different number lines to create include a number line to 6, a number line to 10, and a number line to 20. Also, have one open number line available that can be used for various starts and ending. Create number cards 1-20 to use for the various numbers on the number line

At a Glance

What: Sequence numerals 1-20

Standard:

AR.Math.Content.K.CC.B.4

Understand the relationship between numbers and quantities, connect counting to cardinality.

When counting objects:

- Say the numbers in order, pairing each object with only one number and each number with only one object (one-to-one correspondence).
- Understand that the last number said tells the number of objects counted.
- Understand that each successive number refers to a quantity that is one larger.

Note: Students should understand that the number of objects is the same regardless of their arrangement or the order in which they were counted.

Mathematical Practices:

SMP4: Model with mathematics.

SMP7: Look for and make use of structure.

Who: Students who are unable to sequence numbers easily

Grade Level: K

Prerequisite Vocabulary: number line, numeral, number cards, numbers 1-20

Prerequisite Skills: One-to-one correspondence, numeral recognition, verbally list the numbers 1-20

Delivery Format: Pairs (like ability recommended)

Lesson Length: 20 minute increments – ongoing depending on the level of the students

Materials, Resources, Technology:

Number cards 1-20 and various number lines

Student Worksheets: None

Lesson

| The teacher says or does... | Expect students to say or do... | If students do not, then the teacher says or does... |
|--|---|--|
| <p>1. Can you please count aloud for me starting with one and counting all the way to 20?</p> | <p>The student counts correctly to 20 and continues on</p> <p>The student makes an error at 15, skips the number or says 14 twice or some other similar error</p> | <p>Take note of this error and make sure the student points to the numeral when counting with next step. Go to next step.</p> |
| <p>2. Now I want you to count again and this time when you count, please point to the numeral on the number line as you say that number.</p> <p>(Have a number line to 30 available with all numbers showing on the line. Students who can continue past 20 should do so.)</p> | <p>Student points to the numeral and says each number correctly.</p> <p>Student stumbles a little when getting to 14, 15, 16</p> <p>Student has difficulty with the one-to-one correspondence</p> | <p>Have student repeat the count several times until the count is fluent. The student should use the number line as a visual to see the numbers.</p> <p>Stop this lesson and go back to the one-to-one correspondence lesson</p> |
| <p>3. Give students the first number line with only a few numbers missing.</p> <p>Example A Say: Tell me what numbers you see on this number line. (see example a on the number line examples)</p> | <p>I see the numbers 2, 3, and 5</p> | |

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|---|---|---|
| <p>4. I have some number cards here. (have number cards 1-10 available) Which number card do you think should go before the 2?</p> | <p>“1”</p> <p>Don’t know or incorrect answer</p> | <p>Ask student “How do you know?” Allow the student to reference the completed number line as a check.</p> <p>Have the student orally count the numbers one through 20. What number did you hear before 2? Have the student repeat the count until they hear the correct number. Tell the student that counting out loud is a strategy you can use if you get stuck.</p> |
| <p>5. Now see if you can fill in the other numbers. (It is best to have two students work together to solve the problem so they can think aloud and process together. Make sure they take turns.)</p> | <p>Students fill in the number cards correctly.</p> <p>Students have trouble.</p> | <p>How do you know if it is correct? Make them prove it.</p> <p>Have them count aloud and look at a number line at the same time. Tell them to really focus on the numbers and their order.</p> <p>Leave only one number blank and ask the student to count to figure out the missing number. Make sure to ask how they know? Then ask so what number is before ____? What number is after ____? How do you know?</p> |
| <p>6. Continue using the same number line (to 6) leaving different numbers blank.</p> | <p>Students are fluent with the numbers 1-6</p> <p>Students have difficulty</p> | <p>Stay with the same numbers until fluent. If there is too much difficulty, you may need to go back to one-to-one correspondence lessons and/or subitizing</p> |

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| <p>7. (Pull out the next number line with missing numbers to 10 -see examples c and d)</p> <p>(Follow the same directions as with the number lines to 6)</p> | <p>Students fill in correctly and explain how they know</p> <p>Student has difficulty</p> | <p>Fill in with more numbers and only leave a couple blank. Leave more numbers out as they become more fluent.</p> |
| <p>8. When students are fluent with the number line to 10, then begin giving number lines with 20 increments. Use the same strategies for helping students problem-solve. When you begin a new number line, only have a few cards missing in the beginning, leave more and more missing as they become more confident. Continue switching the missing numbers until the student is fluent with filling in the missing numbers to 20. (example E)</p> | | |
| <p>9. Now I'm going to show you the middle of a number line and see if you can figure out the missing numbers.</p> <p>Give students a number line that does not start at 1 (see example F).</p> <p>I see a 7. What number do you think comes before that?</p> | <p>6</p> <p>8</p> | <p>No matter whether they give a correct or incorrect answer, make the students prove/justify their thinking. They can either count or provide some other explanation.</p> |

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|--|---------------------------------|--|
| 10. Continue to give students different missing numbers starting at different numbers until they are fluent. | | |

Teacher Notes:

1. The written lesson is progressive and will probably not be implemented at one time. Depending on your students, you will work with the number lines as needed to move the student forward. Like all mathematics, learning the sequence of numbers at the application level is a process. Twenty minutes is the suggested time period for an intervention lesson.
2. With these number line problem-solving activities, it is best to have students of like-ability work together so they can help each other problem-solve and process their thinking.
3. Students need a concrete version of the number line (use string, yarn, adding machine tape, etc.) to manipulate. Make sure the increments on the number line are equally spaced. If you are using string for the number line, you might want to hang it eye level for the children.
4. Clothes pins may be used for the increments and to indicate where missing number cards are to be placed.
5. To increase the difficulty level of the task, have more cards available than are needed to fill in the missing spaces. For example, when working with the number line to 6, have the number cards 1-10 available; with number line to 10, have the numbers 1-15 available; etc. On the other hand, if students are having trouble, have fewer cards available.

Variations

1. This activity can be varied based on the needs of the students.
2. Number charts can be used as a variation to the number line. For example instead of a 100s chart, use a chart with numbers to 20 or 30. The activity will work the same way as with the number line.
3. For extra practice, students enjoy dot-to-dot sheets that force them to sequence numbers in order to have a picture emerge. See this website for cute pictures for first grade students: <http://www.dottodots.net/>

Formative Assessment

Observe students as they engage in the different number line activities to determine when to increase the difficulty level. Make sure students are giving justification and proof for their reasoning. Also, ask questions such as “What number comes before?” “What number comes after?” “What patterns do you notice?” “Why do you say that?” “How do you know?”

For the final assessment, have students create a cloze number line task for another student to complete.

References

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