

# Example Lesson Plan: Locating Numbers

## Lesson Objectives:

- Students will locate (place) numbers between zero and ten on a fixed number line. (For more experienced students, extend the range of the numbers being used.)
- Students will give the number name for specific locations on a number line.

## Procedures:

Begin by stringing rope (the number line) across the front of the room.

Prepare the LARGE number cards in advance of the class. (You may wish to choose other larger numbers for more advanced students.)

1. Begin by asking students: "Where should I place zero on the number line?" It is important for them to realize that zero can go anywhere. Based on student input, pin the zero card on the number line, preferably leaving considerable space to the right of zero for other numbers.
2. Next, ask students: "Where should I place 10?" Take advantage of the open number line to foster discussion about where ten could go (anywhere, because we have not yet determined a scale for the number line). After sufficient discussion and input from students, pin the number ten on the number line, preferably leaving plenty of space between zero and ten.
3. Then, students should place various cards on the number line. You might want to distribute the number cards to various students so that they can participate in hanging the cards on the number line.
  - a. Begin with the number 5 card. Ask: "If I know zero, and I know 10, do I know where to place 5?" Listen for students to note that 5 would be halfway between zero and ten. Place the 5 card on the line based on student comments.

- b. Note: If students decide to place a number in the wrong spot initially, that is okay. You might choose to continue without correcting. Eventually, students will run into a logical contradiction or a card that does not feel intuitively correct given its proximity to two or more other cards. Look for these moments to solidify students' number sense.
4. Proceed with other cards, encouraging students to justify how they know where a card might be placed. Listen for comments such as, for example, "4 is half of 8, so it should be placed halfway between zero and 8." ... "6 is one more than 5, so put it one to the right of 5." ... etc. These comments will give you an indication of the developing number sense of your students.
5. Clear all the numbers off the line except for the numbers zero and ten. Place two empty box cards (with the question marks) on the line. Place one at the midpoint between zero and 10 (i.e., 5), and another card roughly where one would expect to see the number two.

Ask students: "Can you tell me what numbers would go in each box?" Vary the location of the empty boxes.

You may include other numbers as anchor points to help students determine what goes in the empty box. For example, place zero, ten, and 8. Next, place an empty box between 8 and 10. "What number goes in the box?"

### ***Lesson Adaptation***

For younger children, or for those who are struggling with numbers to ten, begin with numbers between zero and 5. For older or more advanced children, extend the number line to 20, 50, 100, etc. You might also use number ranges that do not include zero – for example, use endpoints of 15 and 75. Adapt the number cards and student tasks appropriately to reflect these different number ranges. (pp. 9–12)

### ***Reference***

Frykholm, J. (2010). Learning to think mathematically with the number line. Retrieved from [https://www.mathlearningcenter.org/sites/default/files/pdfs/LTM\\_Numberline.pdf](https://www.mathlearningcenter.org/sites/default/files/pdfs/LTM_Numberline.pdf)