Apply Number Measurement Strategies to Number Lines and Percent Problems

PLC Meeting Notes

Overview

Students who lack basic number line strategies will struggle to solve many middle school math problems. This PLC Meeting Outline will review one of the four essential number line strategies (Basic Measurement) so that teachers can recognize, reteach, and help students apply this strategy.

Online PD Outline: https://www.mathtoolfluency.com/online-pd

Topic 1: Do My Students Know How Number Lines Work

Assessing Students Understanding of the Basic Measurement Strategy

Review assessment question and answer the following question: What incorrect solutions do you think students might come up with when solving this problem? Then discuss the possible incorrect student solutions as a group.

Incorrect Students Strategies

Watch the video while keeping the following question in mind: For students that incorrectly label the number line, what do they not understand about how number lines work? Then, discuss your answers to this question.

Classroom Connection

Give this assessment question to a group of students in your classroom. Bring student work to next PLC meeting discuss:

- Were you surprised by some of the students that struggled with completing the number line correctly?
- Were some students able to correctly label the number line but struggled to justify their number placement?
- When having students share their answers and justifications, did you make a conscious decision about which answers and strategies should be shared in which order? Note, this assumes that you circulated the room while students were solving the problem, observed students answers, and asked them why they put the values where they put them.
- How did you handle incorrect answers that were shared?

Topic 2: Use Measurement Strategies to Justify Number Placement

Use the Basic Measurement Strategy to Label Open Tick Marks
Watch the video while keeping the following question in mind: When introducing or reviewing the Basic Measurement Strategy, what are the essential concepts to convey and techniques to demonstrate? Then, discuss your answers to this question.

Use a Measurement Strategy to Show that the "Skip Count" Solution is Incorrect
Discuss how the Basic Measurement Strategy can be used by students to justify why the "skip count" solutions is incorrect. Watching video is optional.

Topic 3: Apply Number Line Strategies to Solve Percent Problems

Apply a Measurement Strategy to Solve a Problem Using a Percent Bar
After watching the video, show how a percent bar can be used to solve the following percent problem: If 80% is 24 grams, how many grams is 100%? Note, to solve this problem on a percent bar, students must use a more sophisticated strategy, Split Distance, and the Basic Measurement Strategy.

Use a Number-Line-Based Diagram to Introduce Formal Percent Strategies
Other percent concepts and strategies can be explored using a percent bar. For example:
- How can division be used to show equivalent ratios on a percent bar?
- Do equivalent ratios exist on a percent bar if percents are listed on the top and grams are listed on the bottom?
- How would a multiplicative relationship be used to solve the percent problem in the previous section?
- How could the percent bar be used to set up a proportion that is structured: some number of grams is to some number of grams as some percent is to some percent?