Making Number Lines/ Open Number Lines (K-2)

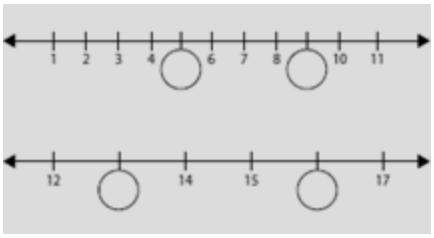
1. For a quick tool for solving problems, students can draw number lines on paper or whiteboards.
2. For an ongoing resource, try sticking tape to a wall or whiteboard and just adding labels and intervals.
3. Try using a clothesline as the number line and students can clip on paper answers with clothespins.
4. Masking tape on a floor makes a quick, large number line.
5. Sidewalk chalk on cement brings learning outdoors and allows for large numbers or gaps between numbers.

Using Number Lines/ Open Number Lines

Number lines provide a way for students to develop strategies, keep track of the steps involved and communicate about their thinking with others. Initially, the number line is used to represent numbers in order and to aid in counting. Later, it is used to develop and model strategies for adding and subtracting.

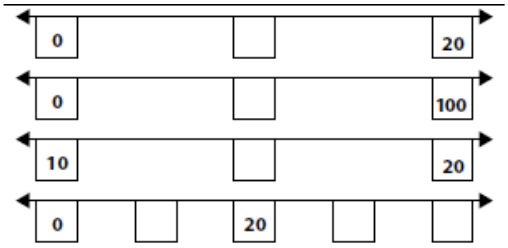
The open number line allows students to partition the number line as they see fit and to use landmark numbers that are comfortable for them. It allows students to count by any number which builds foundations to multiplication.

Activities to do with the Number Lines



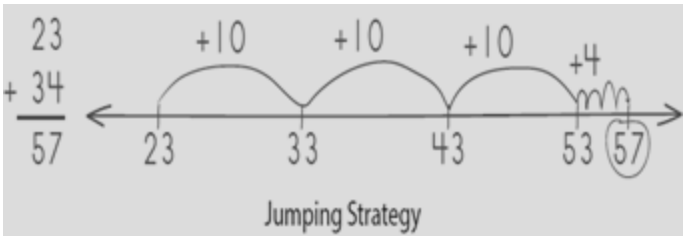
Beginning Activities:

- Missing numbers on the number line: Quickly draw several number lines with different starting and ending points. Partitian the line and label numbers. Leave out some of the number labels on purpose and ask the children to tell you which number belongs in the blank space.
- Where does this number belong? Draw a number line and partitian it. Label only the starting and ending numbers. Give your child several numbers and ask them to tell you where the number would appear on the line and how they know.

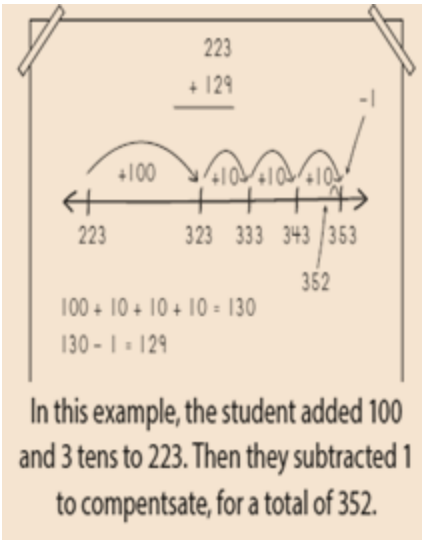


Advanced Activities:

- Use number lines to model addition and subtraction problems. Open number lines allow you to choose the numbers to start and end with as needed to solve the problems.



- Writing equations: Draw a number line with labels and jumps already shown. Then have your child write the equations that matches the work shown on the number line.



The Free App

Number Line

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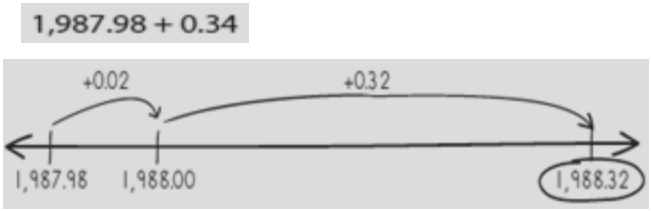
Watch video on using the App: http://www.mathlearningcenter.org/blog/number-line-app

Making Number Lines/ Open Number Lines/ Double Number Lines (3-5)

1. For a quick tool for solving problems, students can draw number lines on paper or whiteboards.
2. For an ongoing resource, try sticking tape to a wall or whiteboard and just adding labels and intervals.
3. Try using a clothesline as the number line and students can clip on paper answers with clothespins.
4. Masking tape on a floor makes a quick, large number line.
5. Sidewalk chalk on cement brings learning outdoors and allows for large numbers or gaps between numbers.



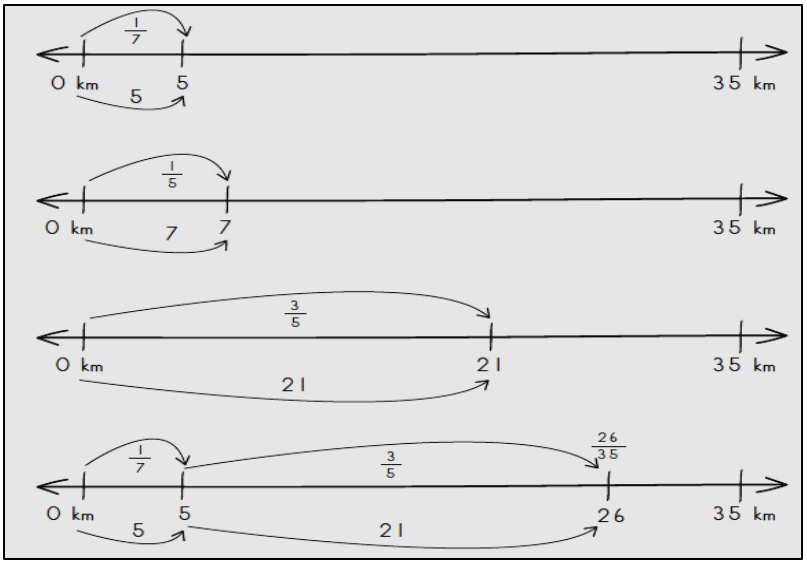
Using Number Lines/ Open Number Lines

Students use the number line to develop and model strategies for adding and subtracting multi-digit numbers and decimals. Number lines are also used to compare and order fractions and decimals. By reasoning about the relationships between the numbers, students place fractions and decimals on a number line given the position of other numbers already placed.

The open number line allows students to partition the number line as they see fit and to use landmark numbers that are comfortable for them. The open number line provides a way for students to develop strategies, keep track of the steps involved and communicate about their thinking with others.

Double number lines are used as a tool to develop an understanding of computing operations with fractions. Students can use these models to answer questions like the ones below (model shown to the right)

> Mr Miles has a 35 km trail by his house. He ran $^1/_7$ of the trail 1 day and then $^3/_5$ of the trail the next day. What fraction of the trail did he run in all? How many total km did he run?



Activities to do with the Number Lines

- What's in between? Draw a number line beginning with 0 and ending with 1. Ask children to find a number that falls between those numbers and label it on the line. Now ask them to find another number and label it between what they wrote and one of the end points. Continue for many rounds.
- My line, your line. Write a multi-digit or decimal addition or subtraction problem with your child. Each of you should make your own number line to model how you thought about the problem. Compare your number lines and discuss similarities and differences. If they were the same, try to come up with a different way to show the problem.

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