Visualizing with Number Lines: Tracking a Big Idea through the CCRSAE

The curriculum shift of COHERENCE emphasizes that math is a connected system of knowledge, where concepts build from concrete to more abstract and where big ideas continue through different topics. In the chart below, we can see that number lines can be a tool for building conceptual understanding at all levels of math and across domains.

Level A

- *Although not explicitly mentioned in the CCRSAE at this level, number lines are often used to teach counting and early number and operation sense.*

Level B

- **Whole Numbers:** Represent whole number values, sums and differences within 100 on a number line diagram. (2.MD.6)
- **Time Units:** Solve word problems involving time intervals in minutes using a number line diagram. (3.MD.1)
- **Fractions:** Understand a fraction as a number on the number line. (3.NF.2)

Level C

- **Decimals:** Locate decimals on a number line diagram. (4.NF.6)
- **Measurements:** Represent measurement quantities using number line diagrams. (4.MD.2)
- **Coordinate Plane:** Graph points on a coordinate plane using a pair of perpendicular number lines, called axes. (5.G.1)
- **Data:** Display numerical data in plots on a number line. (6.SP.4)
- **Inequalities:** Represent solutions of inequalities on number line diagrams. (6.EE.8)

Level D

- **Rational Numbers:** Understand a rational number as a point on a number line, extending lines to include negative numbers. (6.NS.6)
- Understanding ordering and absolute value using a number line. (6.NS.7)
- Represent addition and subtraction of rational numbers on a number line diagram. (7.NS.1)
- **Ratio:** Use double number line diagrams to solve ratio and rate problems. (6.RP.3)
- **Irrational Numbers:** Approximately locate irrational numbers on a number line diagram. (8.NS.2)