

WHY NUMBER LINES SHOULD BE BUILT

A discussion guide for instructional coaches and teachers to use with the DMT Insight on number lines.

How to use it. Work the guiding question both times. Use the Before prompts before the reading or video, and the After prompts once your team has read or watched.

THE GUIDING QUESTION

When your students use a number line, are they reading one we built for them, or building the line, and the reasoning that comes with it, themselves?

COGNITION

How learning holds

BEFORE

Watch a student place 47 on a pre-made number line. What thinking does the printed line do for them, the endpoints, the spacing, where zero sits, that they never have to do themselves?

AFTER

When a student builds the number line, they pick a unit and step it off, so 47 becomes a distance rather than a spot to point at. This week, could students build a number line so that a number feels like a length?

MATHEMATICS

How ideas connect

BEFORE

Look past this unit. Where else this year will your students meet a number line in disguise, a ruler, a fraction strip, the side of a bar graph, the x-axis?

AFTER

An axis is a scaled number line, and a fraction is a length you partitioned. If students build the scale themselves now, which later topic (line plots, equivalent fractions, the coordinate plane) gets easier?

INSTRUCTION

How we teach it

BEFORE

When you hand out a number line, how much is already decided for the student? What would be left for them to decide if you handed out a blank line instead?

AFTER

What is one task you will try this week that starts with a blank number line and a question like “how did you choose your unit?”, and what will the spacing and labels in their drawings tell you about their thinking?