

Summary of Video Excerpts: Building Understanding of Equivalence By Connecting Fraction Strips to Number Line

Overview: The series of lessons was intended to have Dr. Takahashi show how he would follow up on the first series of lessons, using the number line with fraction strips to go on to build students' understanding of equivalence. Dr. Takahashi discovers that some students do not yet grasp some basic ideas about unit fractions—e.g., that one-fourth is made by dividing one whole into four equal parts, that one-fourth is the length that goes four times into 1 whole, etc. Nor have students developed strong knowledge of the number line or of fraction notation (e.g., what the denominator means). So Dr. Takahashi devotes time to building these basic understandings, and to helping students see the number line as a tool they can use to make sense of fractions greater than one. While fluency with the number line and understanding of equivalency are only beginning to develop, the lessons richly surface many challenges in teaching fractions.

Note: One additional challenge of these lessons, which you may or may not wish to introduce, is use of a liquid measurement context (gallons, half-gallons, quarts), rather than meters. (Meters are used in the textbook and the earlier series of lessons by Dr. Takahashi) These liquid measurement units offer a real-world context familiar to students. However, it takes some time to help students see that a “quart” is a quarter gallon, and to think of the quarter and the half gallon in relationship to the whole gallon, rather than as different wholes.