

Building Mathematical Thinkers : Mini-Activities
Representing Decimals

Objective: Number Sense – Decimal Representations

Theoretical Foundation: Fifth graders are expected to understand not only the size and value of decimal numbers, but also their symbolic and fractional form. This activity allows students to explore these concepts in a constructivist manner and emphasizes the importance of visualizing the magnitude of numbers.

Estimated Time: 30-45 minutes

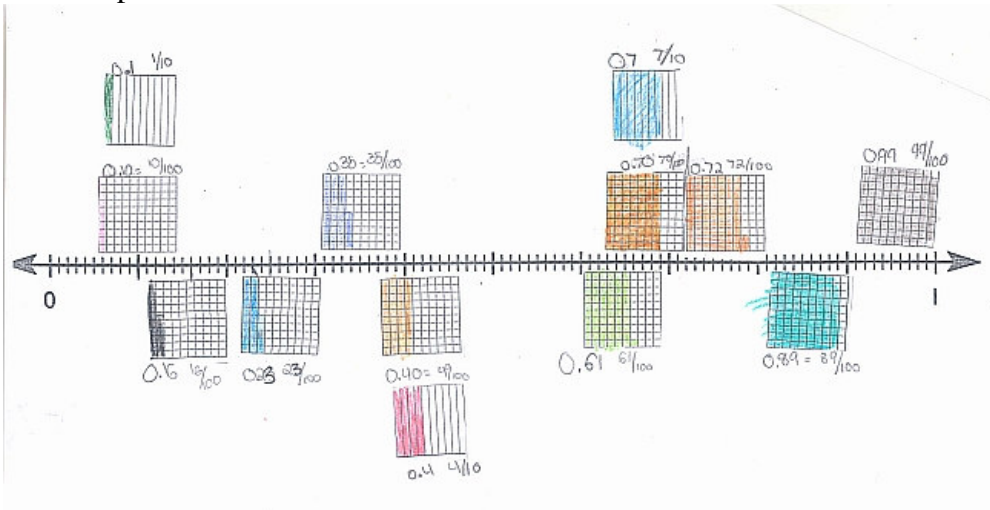
Materials: Scissors; Glue; Copies of blank number line (included) or large paper and rulers; Copies of decimal squares (included)

Directions:

1. Having the students construct their own 0 to 1 number line is much more beneficial than using a reproduced number line. To do this guide the students through dividing a line into tenths, then dividing each tenth into hundredths. OR
2. Since constructing a number line from scratch is very time-consuming, feel free to use the blank number line included with this activity.
3. Have the students label the first mark 0 and the last mark 1
4. Ask students to shade one of the hundredths squares to shade 4 hundredths. They should cut this square out carefully.
5. Ask students, “Where would four hundredths go on the number line? How do you know?”
6. Students should carefully glue the colored square at 0.04
7. Guide students to write 0.04 and $\frac{4}{100}$ beneath the decimal square.
8. Write a list of other decimals to include on the number line:

0.1	0.70	0.75
0.10	0.4	0.89
0.61	0.35	0.40
0.99	0.15	
0.7	0.23	

9. Students can shade, glue, and write the decimal fractions while the teacher circulates to check work and ask probing questions.
10. Finished product:



Differentiation Suggestions:

- Struggling students may need to see more modeling.
- Struggling students may benefit from working with a partner of a similar ability.
- Advanced students can extend the number line beyond 1 and work with numbers such as 1.43 and 2.06

Probing Questions:

- How did you decide where that decimal goes on the number line?
- How do you know those two decimals are equivalent? What will you do on the number line to show that they are the same value?
- How did you figure out the fraction to represent that decimal?
- How could you use this number line to compare decimals?
- What do you notice about how decimals and fractions are related?

Assessment:

- How accurately and independently can students create the number line?
- Do students appear to be more comfortable with some representations than others?
- How do students reason about their placement of decimals and fractional equivalencies?



Decimal Squares for Number Line

