Decimal Strip Model

This model is the same format as base 10 materials, without using that manipulative and dealing with student past perceptions.

Student constructed manipulatives for decimals are very effective, yet letting students choose a whole leads to lack of consistency in models.

Photocopy a copy of page 1 on cardstock for every student. This page is cut out by students to represent wholes. They can be asked to cut two of their strips into tenths, with these used to model numbers such as 3 and 2 tenths, etc.

Page 2 is a template with the tenths clearly marked. These can be a scaffold for students who did not cut equal size pieces on their own.

Page 3 is a mat that can be used to organize numbers that students construct.

Page 4 is a place value mat (legal size paper) . This can be used to add and subtract or model numbers.

Multiple Representations

One of the essential understandings of decimals is modelling decimals in multiple ways. Thus, 16 tenths is the same as 1 and 6 tenths. Students can model 16 tenths on the page 3 mat, and then be asked another for another way to write the number, or why it's the same as 1 and 6 tenths.

Rounding Numbers

Have students construct a number such as 3 and 3 tenths on the mat. Is it closer to 3 wholes or 4 wholes? An alternative question might be, "To make a number with no tenths (all wholes), is it easier /quicker to add on 8 more tenths, or take away 2 tenths?"

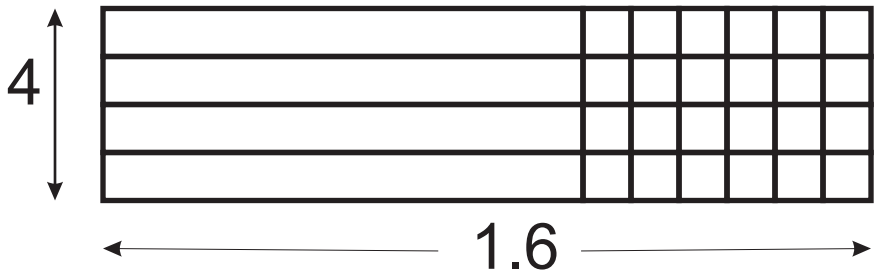
Adding / Subtracting Decimals

Since this model is similar to base 10 manipulatives, students can add and subtract decimals and model the standard algorithm. Model any two numbers with tenths (such as 2.4 and 3.8) on the place value mat and have students model the standard algorithm and show why the decimal have to line up. This can lead to a splitting or partitioning model of adding decimals.

The singles column has a grid to place the tenths in. When one of the grids is full, it can be grouped into a whole.

Multiplying Decimals

As the model is long strips, they can be used to model multiplication of decimals resulting in an array.



This can lead to the use of the distributive property in decimals, as the two parts 4 X 1 and 4 X 6 tenths are shown in the array.