Mixed Number \times Fraction Models

Materials: cuisenaire rods

1. Write a story context to illustrate \(1 \frac{3}{4} \times \frac{1}{2}\).

2. Use cuisenaire rods to model the problem in two different ways.

   **Model 1:** Assign brown the value of 1. Make a model of \(1 \frac{3}{4}\) and find a rod that is half the length.

   **Model 2:** Show the distributive rule: 
   \[
   \frac{1}{2} \left( 1 + \frac{3}{4} \right) = \frac{1}{2} \times 1 + \frac{1}{2} \times \frac{3}{4}
   \]

3. Write and solve another problem in which a mixed number is multiplied by a fraction. Model the problem in two different ways.
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Model 1 solution:

If we assign brown the value of 1, red represents $\frac{1}{4}$ and white is $\frac{1}{8}$.

One brown and 3 reds represents $1 \frac{3}{4}$. Black is half of this and black is 7 whites, so black is $\frac{7}{8}$.

Model 2 solution:

If we assign brown the value of 1, then red is $\frac{1}{4}$, purple is $\frac{1}{2}$ and white is $\frac{1}{8}$.

Half of brown is purple. Half of 3 reds is a red and a white.

A purple, a red, and a white make $\frac{7}{8}$. 