

Family Math Newsletter

Grade 4, Unit 3 – Decomposing and composing fractions for addition and subtraction

The Mathematics Involved

Students in fourth grade begin to add and subtract fractions with like denominators. The goal of this unit is for students to understand the makeup of fractions by renaming fractions as the sum of its parts. For example:



Using the fraction tiles above, students can write the following equivalency statements:

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{5}{3}$$

$$\left(\frac{1}{3} + \frac{1}{3} + \frac{1}{3}\right) + \left(\frac{1}{3} + \frac{1}{3}\right) = \frac{3}{3} + \frac{2}{3} = \frac{3+2}{3} = \frac{5}{3}$$

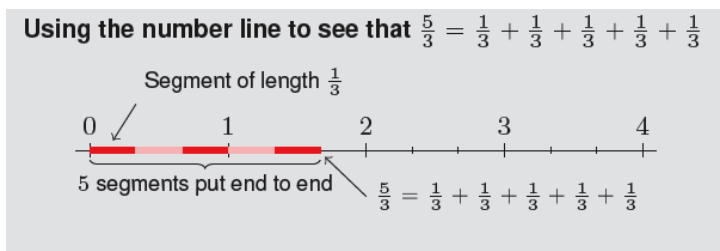
$$\frac{5}{3} = \frac{3}{3} + \frac{2}{3} = 1 + \frac{2}{3} = 1\frac{2}{3}$$

For virtual fraction tiles go to

http://www.abcya.com/fraction_tiles.htm

An app is also available.

Students will also represent these relationships on the number line as shown below.



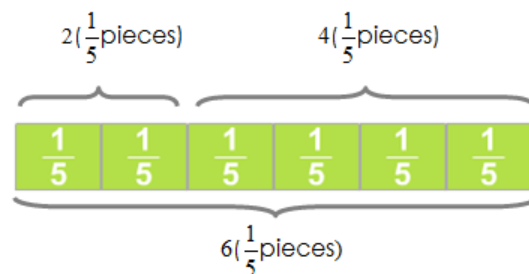
For more information see <http://bit.ly/18MyMkl> page 7.

Finally, students will add and subtract fractions using visual models and/or number lines. Students will add by thinking about the number of pieces of the same whole that are being combined.

For example, with the equation $\frac{2}{5} + \frac{4}{5} = ?$, students

add $2(\frac{1}{5}\text{pieces})$ with $4(\frac{1}{5}\text{pieces})$ giving us a total of

$6(\frac{1}{5}\text{pieces})$. See the fraction tiles illustration.



Using the visual model provided, students could record the following equivalent values, while thinking about the number of pieces from the same whole being added.

$$\frac{2}{5} + \frac{4}{5} = \frac{2+4}{5} = \frac{6}{5} = \frac{5}{5} + \frac{1}{5} = 1 + \frac{1}{5} = 1\frac{1}{5}$$

Students will subtract using similar models, thinking about how many pieces of the same whole are being removed.



For example, with the equation $\frac{7}{6} - \frac{3}{6} = ?$, students

start with $7(\frac{1}{6}\text{pieces})$ and subtract $3(\frac{1}{6}\text{pieces})$, by

removing or crossing them out, leaving $4(\frac{1}{6}\text{pieces})$.

Using the visual model above, students could record the following equivalent values, while thinking about the number of pieces from the same whole being subtracted.

$$\frac{7}{6} - \frac{3}{6} = \frac{7-3}{6} = \frac{4}{6}$$

This could also be illustrated on a number line:

