

## Math & Science Collaborative Inquiry Project

**Lesson Title** Visual Representation of the Division of Fractions

**Date** 12/9/10

**Unit Learning Target:** I can divide fractions and visually represent how I got my answer.

**Lesson Learning Target:** *What are the students expected to be able to do?*

I can visually represent the division of a fraction into a whole number

### Do the Math/Science

Students will have to come into the lesson with an understanding of division, including unitizing the remainder in whole number by whole numbers examples. E.g.  $13 \div 8$  is 1 remainder 5, but is represented as  $1 \frac{5}{8}$ . The fractional part of the answer represents the proportion of the original divisor left over in the remainder. This understanding is crucial in fractional division, since we will not be using remainders in our answers. The lesson will rely heavily on the use of fraction blocks and students should be familiar with their usage and meaning beforehand. In order to fully grasp the implications of the lesson the students will need an understanding of reciprocals and the relationship between mixed numbers and improper fractions. This knowledge isn't necessary to perform the learning task, but is needed instead for the extension of the learning task to an overall strategy for division of fractions.

### Identify Success Criteria

The success criterion for the students is to be able to individually solve a new division problem using the fraction blocks and to be able to explain their reasoning to their partner and instructor.

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Time	Draft the lesson flow	Anticipate responses	Remember	Check for understanding
How much time should be spent?	How should the lesson progress?	What correct/incorrect student responses can we anticipate? What is our reasoning?	Is there anything specific the facilitator should remember to do? Not to do? How will the facilitator respond to student ideas?	What do we want the learners to know? How will we know learning expectations are met? What will be our evidence?
	<ol style="list-style-type: none"> <li>1) Introduce the Learning Target to the students. Present the students with what they are going to learn, why they are learning it, and how they are going to learn it.</li> <li>2) Explain the Learning Task to the students.</li> <li>3) Pass out materials and group the students into pairs (we are using the seating chart arrangement for this).</li> <li>4) Students work on the Learning Task (<math>1 \div \frac{2}{3}</math>) in their pairs for 5 – 10 minutes. <ul style="list-style-type: none"> <li>• After the initial work times, the students can look for assistance from the other nearby groups, but the teacher will only provide clarification, not instruction at this time.</li> </ul> </li> <li>5) Students share out their answers and methods.</li> <li>6) Begin a second Learning Task (<math>1 \div \frac{3}{4}</math>).</li> </ol>	<ul style="list-style-type: none"> <li>• When presented with the first task, we expect that student will fail to unitize the remainder. i.e. for the task of <math>1 \div \frac{2}{3}</math>, we expect <math>1 \frac{1}{3}</math> as a common incorrect answer.</li> </ul>	<p><b>! Share the target both visually and verbally at the beginning and the end of the lesson. Remind students of the target throughout the lesson.</b></p>	

### References:

Format ©2001, Lesson Study Research Group ([lsrg@columbia.edu](mailto:lsrg@columbia.edu)). [www.tc.columbia.edu/lessonstudy/tools.html](http://www.tc.columbia.edu/lessonstudy/tools.html).

Expanded Lesson Planning Framework ©2009 Teachers Development Group V.3.12

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