

STRATEGIES FOR COMPARING FRACTIONS

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STRATEGIES FOR COMPARING FRACTIONS

Whenever we introduce a new math concept to our students, it is important that we start with concrete materials and then connect those models with representations of them and finally explore the concepts abstractly using numbers. This resource is designed as a cheat sheet for all the various strategies we can use to compare fractions and using pictorial representations to support why the strategy works. In your classrooms, please be sure to explore each strategy concretely and pictorially before it is used as an abstract reasoning method. Pattern blocks, fraction tiles, and Cuisenaire Rods are excellent tools for the concrete stage while drawing circles and rectangles work well in the pictorial stage. For the abstract stage, double numberlines are very effective. Whenever we can connect these methods together, the better. The goal would be that students will eventually be able to see two fractions and then reason about which one is larger and be able to explain their thinking.

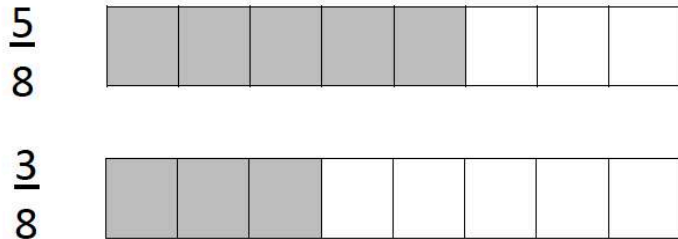
STRATEGIES FOR COMPARING FRACTIONS

SAME DENOMINATOR

If the denominators are the same, compare the numerators.

$$\frac{5}{8} > \frac{3}{8}$$

Five eighths are more than three eighths

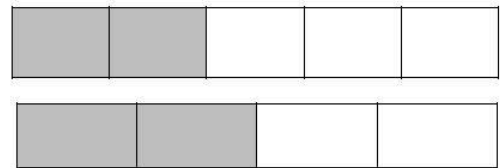


SAME NUMERATOR

If the numerators are the same, compare the denominators keeping in mind that the larger the denominator, the smaller the size of the pieces.

$$\frac{2}{5} < \frac{2}{4}$$

Fourths are larger than fifths, so having two pieces of each size means that two fourths is larger than two fifths.

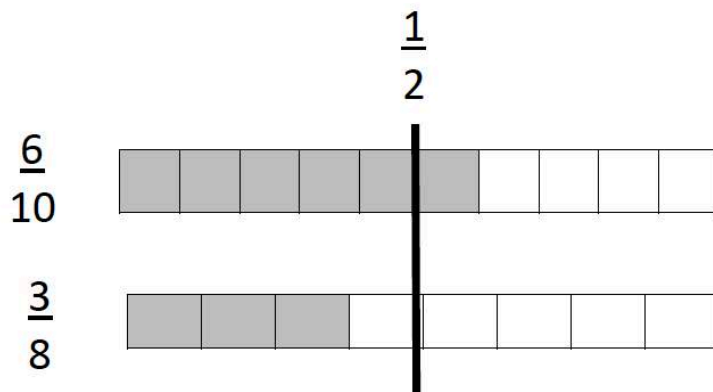


BENCHMARK OF ONE HALF

Compare the fractions to one half. If one is larger than one half and one is smaller than one half, you can determine the larger fraction.

$$\frac{6}{10} > \frac{3}{8}$$

Six tenths is larger than one half and three eighths is less than one half, so we know that six tenths must be larger than three eighths.



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BENCHMARK OF ONE WHOLE

Compare the fractions to one whole. If one is larger than one whole and one is smaller than one whole, you can determine the larger fraction.

$$\frac{7}{6} > \frac{3}{4}$$

$$\frac{7}{6}$$



$$\frac{3}{4}$$



Seven sixths is larger than one whole and three fourths is smaller than one whole. So we know that seven sixths is larger than three fourths.

$$\frac{3}{4}$$



MISSING THE SAME NUMBER OF PIECES

If the numerators are the same, compare the denominators keeping in mind that the larger the denominator, the smaller the size of the pieces.

$$\frac{2}{3} < \frac{7}{8}$$

$$\frac{2}{3}$$



$$\frac{7}{8}$$



Both two thirds and seven eighths are missing one piece. Since eighths are smaller than thirds, seven eighths is closer to one whole and therefore larger.

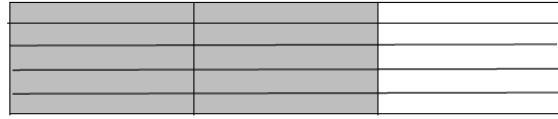
COMMON DENOMINATOR

There are times when the reasoning about the two fractions is just too close to call and we need to rename them so that they have the same denominator.

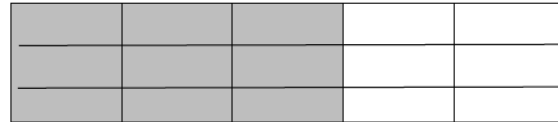
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$$\frac{2}{3} > \frac{3}{5}$$

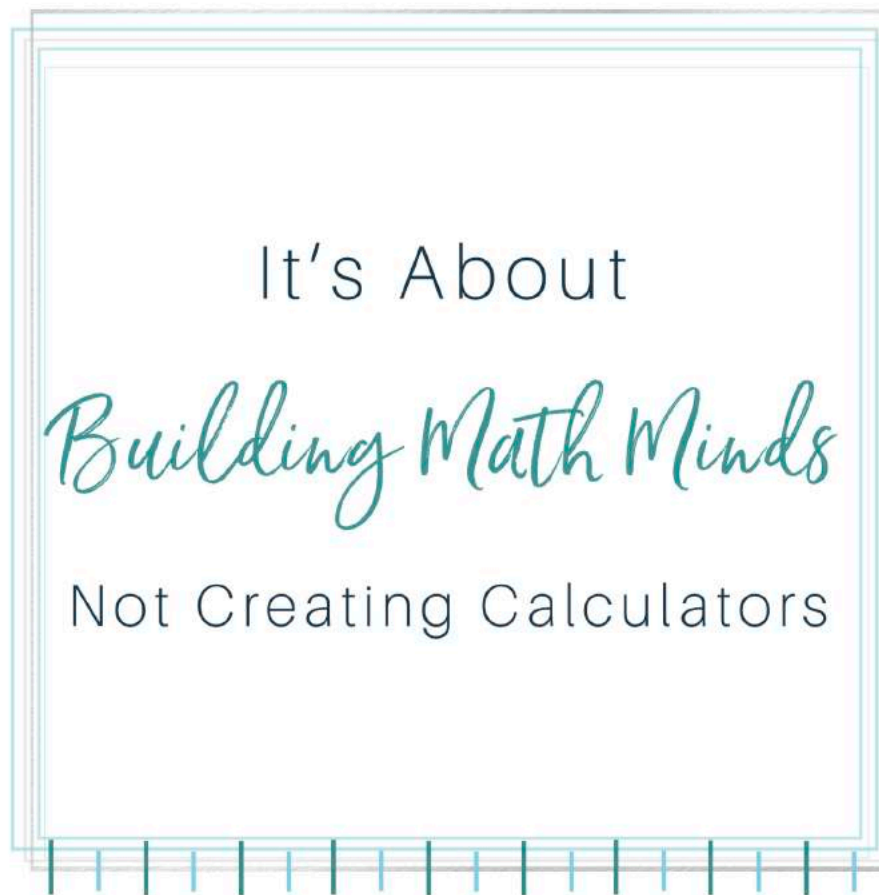
$$\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}$$



$$\frac{3}{5} \times \frac{3}{3} = \frac{9}{15}$$



In this example, we can give the two thirds the experience of being partitioned into fifths horizontally. Then, we can give the three fifths the experience of being partitioned into thirds horizontally. In this way, we now have equivalent fractions for both that are in the same numerator of fifteenths. Ten fifteenths is larger than nine fifteenths so we know that two thirds is larger than three fifths.



Teaching math isn't easy and for a lot of teachers, it isn't fun...like AT ALL!! Especially in this era of education, there are a lot of unknowns about what and how we should be teaching. You are NOT alone. With the implementation of new standards, assessments, and (for some) new curriculum, teachers are feeling bogged down and yet left out on their own to make sense of it all. Build Math Minds is here to help with that.

The Build Math Minds site has professional development videos for elementary teachers on all topics of mathematics. You can earn PD credits from the comfort of your home, at times that are convenient for you. Inside the BMM site, we focus on building Content, Community, and Your Confidence.

Build Math Minds is designed to build your Content Knowledge, your Confidence in teaching math, and give you a Community of like-minded educators that understand what you are going through as you try to build math-thinkers, not calculators.