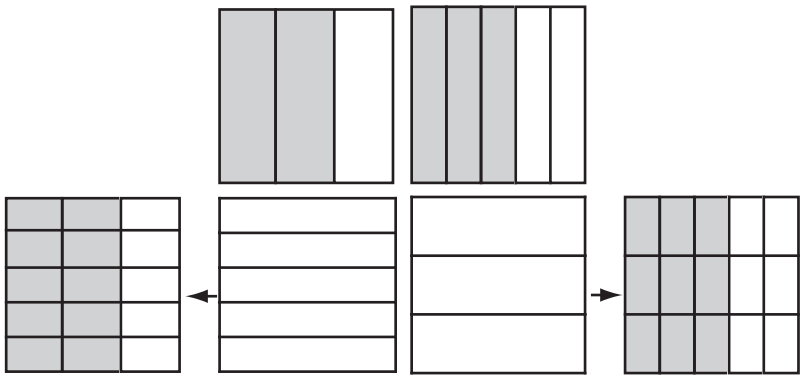
LESSON 7

Comparing Fractions with the Rule of Four

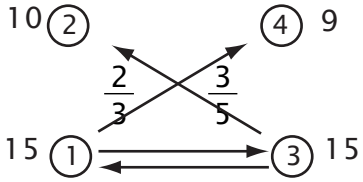
So far we know that "=" means "equals" or "is the same as." If two fractions are not equal, and one is larger or smaller than the other, there are symbols to represent this. As you read an equation from left to right, ">" means "is greater than" and "<" means "is less than." We call these symbols ***inequalities***. For example, nine is greater than three, or 9 > 3. If it were the other way around, you would write three is less than nine, or 3 < 9. There are other ways to think of these symbols. Some say the open, or large, end of the symbols always points to the larger one, and the small end, or point, points at the smaller one. Some children think of the symbol as a hungry alligator with its mouth open, always trying to eat the larger number. Use whatever helps you remember this symbol.

Inequalities apply to fractions in two ways: denominators that are the same, and denominators that are different. If the denominators of two fractions are the same, then you just compare the numerators. An example of this is 3/4 > 1/4, or three-fourths is greater than one-fourth. But what about 2/3 and 3/5? Which is larger? Remember what we did when adding two fractions with different denominators? We first made them the same kind, or same denominators, and then combined the numerators. To compare or combine, two things must be the same kind. So now we must make them the same kind, or denominator, and then compare the numerators. We'll do this in the picture on the next page. Using the overlays, we get a pretty good idea which symbol to use, but the rule of four will determine the answer.

Example 1 $\frac{2}{3}$ $\frac{3}{5}$



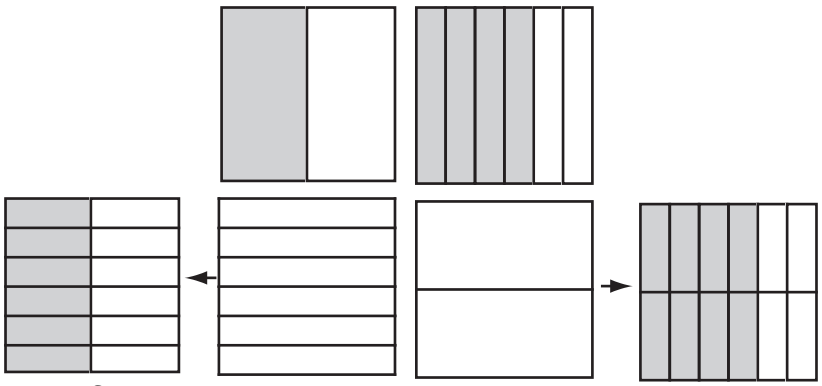
$\frac{10}{15}$ $\frac{10}{15}$ > $\frac{9}{15}$ $\frac{9}{15}$



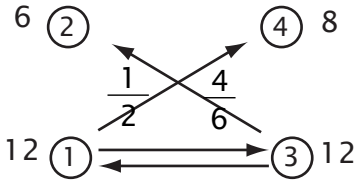
$\frac{10}{15}$ > $\frac{9}{15}$ → $\frac{2}{3}$ > $\frac{3}{5}$

Two-thirds is greater than three-fifths.

Example 2 $\frac{1}{2}$ $\frac{4}{6}$



$\frac{6}{12}$ $\frac{6}{12}$ < $\frac{8}{12}$ $\frac{8}{12}$



$\frac{6}{12}$ < $\frac{8}{12}$ → $\frac{1}{2}$ < $\frac{4}{6}$

One-half is less than four-sixths.