Name:_____

Compare each pair of fractions (find which one is larger) using fraction bars and fraction circles. The goal of this activity is for you to find new ways of thinking about fractions. Each set of fractions follows a rule.

- It is your job to find the rule and write it in a way that says what the rule does, and which kinds of fractions it works for.
- None of your rules should be "find a common denominator" or "compare the decimal versions" because you are looking for new insights.
- You need to explain why your rule makes sense (if your rule doesn't always work and make sense, it's not the right rule).
- It is also your job to make sure your rule is well stated (it should always work for the types of fractions you specify). Your rules should say something like if there are two fractions and they [have some property] then the one that [has this property] is the larger of the two fractions.

A useful word: **unit fraction** means a fraction with a 1 in the numerator. Every fraction has a unit fraction associated with it. For example, the unit fraction associated with 3/4 is 1/4. You should be looking for rules that you can explain using either the size of a unit fraction or by comparing to a friendly number (like 1 or perhaps ½) or both.

1. Find a rule that tells you which is larger in the first 3 pairs of fractions.

$\frac{a}{b}$	< >	$\frac{c}{d}$	Rule: If ... Then...
$\frac{3}{7}$		$\frac{2}{7}$	
$\frac{7}{10}$		$\frac{9}{10}$	
$\frac{2}{9}$		$\frac{1}{9}$	
$\frac{a}{b}$	< >	$\frac{c}{d}$	Which of these does the rule help you answer (why or why not)?
$\frac{4}{21}$		$\frac{8}{21}$	
$\frac{7}{12}$		$\frac{5}{6}$	
$\frac{86}{100}$		$\frac{90}{121}$	

Why does rule #1 make sense? (make sure that you are including your "if" condition to help you explain why it makes sense)

2. Find a rule that tells you which is larger in the first 4 pairs of fractions.

$\frac{a}{b}$	< >	$\frac{c}{d}$	Rule
$\frac{1}{6}$		$\frac{1}{5}$	
$\frac{1}{7}$		$\frac{1}{9}$	
$\frac{3}{4}$		$\frac{3}{5}$	
$\frac{2}{7}$		$\frac{2}{9}$	
$\frac{a}{b}$	< >	$\frac{c}{d}$	Which of these does the rule help you answer (why or why not)?
$\frac{8}{26}$		$\frac{8}{21}$	
$\frac{7}{10}$		$\frac{4}{7}$	
$\frac{90}{120}$		$\frac{100}{130}$	
$\frac{91}{115}$		$\frac{2}{5}$	

Why does rule #2 make sense?

Explain which is bigger of these two and how you know:

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

Find rule #3:

$\frac{a}{b}$	< >	$\frac{c}{d}$	Rule
$\frac{8}{9}$		$\frac{9}{10}$	
$\frac{7}{8}$		$\frac{5}{6}$	
$\frac{5}{7}$		$\frac{7}{9}$	
$\frac{8}{11}$		$\frac{7}{10}$	
$\frac{a}{b}$	< >	$\frac{c}{d}$	Which of these does the rule help you answer (why or why not)?
$\frac{7}{12}$		$\frac{5}{6}$	
$\frac{98}{125}$		$\frac{85}{104}$	
$\frac{90}{120}$		$\frac{100}{130}$	

Why does rule #3 make sense?