

## Building Initial Fraction Concepts

1. Use word names before symbols.  
concrete materials used extensively before diagrams.  
kid initially have difficulties with diagrams.  
mastery should be at the 90% level.  
best to use just one model to teach. My choice is fraction bars.
2. Ordering fractions – fraction cards.
3. Fraction bars. Can be used for  
initial fraction concerns  
add sub of fractions  
division of fractions
4. Fraction wheel. Students to construct  
showing  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{2}{3}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{5}$ ,  $\frac{5}{6}$  (and possibly twelfths).  
Extension: include fifths and tenths.
6. There are 6 ways to represent fractions  
part of an area  
part of a set (can be confusing)  
number line  
quotient (demonstrated by paper folding)  
ratio concept (fraction bars)  
“stretching machine” – novel approach
7. Fraction Games (look up on the Internet)  
FRIO (ordering)  
Fraction “In-Between” (good!)  
5 Fraction Roll (equivalent fractions)  
Subtraction double draw.  
“Fractions Squared” games  
Beat the Ruler (addition)  
More or Less game (ordering)
8. Fraction Deck Card Set – look up on the Internet  
Top Draw equivalent fractions, parts of a whole  
Make a Match  
The big 1  
The big 2 (v2)  
Fraction Jax  
Less than 5
9. How do I spend my day (e.g.  $\frac{1}{3}$  sleeping etc)
10. Tangrams: choose different pieces as the unit. Express other pieces as a fraction of that unit. Also choose entire square to be the unit.
11. Geoboard  
Unit is  $3 \times 3$  square. Show  $\frac{2}{9}$ .  
Good for introducing mixed numbers (e.g.  $1 \frac{3}{4}$ )

Many uses

Extension:  $4 \times 4$  square is unit. Find a **square** equal to  $\frac{1}{2}$ .

12. Addition of fractions magic squares  
standard magic square  
my magic square
13. Let Them Eat Cake  
Bring a pan of brownies to class (or a number of small pans of brownies)  
Demonstrate different fractions.  
Have kids figure out how to divide equally, and what fraction each receives.
14. Division of fractions  
defer until grade 8 or 9  
child must have a reason for learning  
must make sense  
child must be active in the learning process  
drill and practice are necessary for automatic response (if that is what you want).
15. Adding fractions  
Add vertically at first.  
Use words for denominator
16. Division of fractions activity  
Fold a paper strip 8 units long into 4 equal parts. Measure 1 part.  $8 \div 4 = 2$   
Fold a paper strip 7 units long into 4 equal parts. Measure 1 part.  $7 \div 4 = 1 \frac{3}{4}$ .  
Ditto a strip 3 units long.
17.  $\frac{1}{2} \div 4$ . Take half a piece of paper and divide it into 4. Each piece is  $\frac{1}{8}$  of the original.
18. Addition of fractions – unit square. Then generalise.