**Using the Fraction Kit**

**Making the Kit** using strips: each child needs 8 strips of colored paper, and an envelope to hold them. It's easy to cut the strips from paper 12" x 18". By making the kit, the children get familiar with writing the names of the fractions, looking at the sizes of the pieces, and the important *inverse relationship* :  *the larger the denominator, the smaller the piece. (the more people that share the cake, the smaller the piece that each person gets)*

Halves, fourths, eighths, sixteenths.....thirds, sixths, twelfths

 1/2 1/4 1/8 1/16 1/3 1/6 1/12

**Activity to get familiar with the pieces.**

Place the WHOLE in front of you. Cover your WHOLE exactly with different pieces.

Record your result: 1/2 + 1/4 + 1/8 + 1/8 = 1

 Do this 5 different ways.

 Try this using only one color.

 1/4 + 1/4 + 1/4 + 1/4 = 4/4 = 1

 (8/8 = 1 12/12 = 1 16/16 = 1, etc.)

**Equivalent Fractions**

 Use the kit to generate different pairs of equivalent fractions.

 Easier to generate them using a 1 ( 1/4 = 2/8 1/2 = 8/16 )

 Also generate some without using a 1 : ( 2/4 = 3/6 6/8 = 3/4)

Look at the pairs of equivalent fractions generated by the class:

 Are there different names for 1/2?

 Are there different names for other fractions?

 Look for patterns in the numbers.

Solve problems like these using the kit:

 1/2 = ?/8 3/4 = ?/16 2/4 = ?/ 16 4 /4 = ?/8

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 **Exchange Game**

Use the pieces ( halves, fourths, eighths, sixteenths)

 with a die labeled ( 1/2 1/4 1/8 2/8 1/16 2/16)

 or

Use the pieces ( thirds, sixths, twelfths) with a die labeled

(1/3 1/3 1/6 1/6 1/12 1/12 )

***Directions****: This is a subtraction game. Each person needs their own gameboard which is made by covering WHOLE with 2 halves. Take turns. Roll the die, and remove that much from your gameboard. Exchange if necessary. The first person to uncover the WHOLE is the winner. You must uncover the whole* ***exactly****. Example: you have 1/16 left on your board, and you roll 1/4. Since you can't tak 1/16 from 1/4, then you must pass your turn.*

***Variation:***  *If you have 1/16 left on your gameboard, and you roll 1/4, instead of passing your turn, put the 1/4 piece back on your board.*

**Addition and Subtraction:** Make up addition and subtraction problems that you can solve with your kit. This can easily get into mixed numbers: 5/8 + 1/2 = 9/8, which can be changed to 1 whole and 1/8.....1 1/8

**Multiplication :**

You can use the Kit to illustrate repeated addition:

 3 x 1/2 (3 of the halves) 1/2 + 1/2 + 1/2 = 3/2

 4 x 1/8 ( 4 of the eighths) 1/8 + 1/8 + 1/8 1/8 = 4/8

The word **OF** helps to give meaning to muyltiplication of fractions.

 1/2 **OF** 1/4

 Here, the meaning of 1/2 is important, but the kit piece labeled 1/2 is not

 used at all. Find 2 equal pieces that fit on the 1/4 piece.

 If I had 1/4 of a cake and you and I were to share it equally,

 what size piece ( of the whole cake), would we each have.

Try some problems......make up some others. Look for patterns.

 1/2 of 1/8 1/4 of 1/2 3/4 of 1/4

**Division:**

12 divided by 2 ( how many 2s are in 12?)

 10 divided by 5 ( how many 5s are in 10?)

 12 divided by 1/2 ( how many 1/2s are in 12?)

 *If I give 1/2 a cookie to each child and I have 6 cookies,*

 *how many children can receive a cookie treat?*

 Use the Kit:

 1/2 divided by 1/4 ( how many 1/4s are in 1/2?)

 1/4 divided by 1/8 ( How many 1/8s are in 1/4?)

 Make up some division problems that you can solve using the kit.