Fraction Kit Games.

- Fraction Cover Up
- Fraction Exchange
- Judy's Fractions

To play Fraction Cover Up, Fraction Exchange, and Judy's Fractions you will first need to construct the Fraction Kits. There are two kits. You will also need a die or pair of dice which can be labelled with a marker pen, or you can use the conversion table below. Constructing the Kits is a great way to start learning about fractions.

The first set of pages below are the instructions for creating the fraction kits.

Following the instructions for making the kits are the instructions for playing the games. Fraction Cover Up and Fraction Exchange are rated for grades 3-4.

Judy's Fractions is rated for grades 4-5.

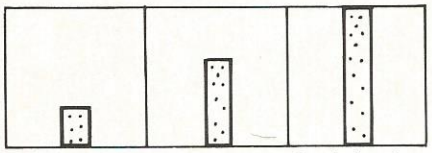
Die Conversion Table Kit 1

Die Marking	**Kit 1 Meaning**
1	1/2
2	1/4
3	1/8
4	2/8
5	1/16
6	2/16

Die Conversion Table Kit 2

Die Marking	**Kit 2 Meaning**
1	1/3
2	1/4
3	1/6
4	1/8
5	1/12
6	1/16

Making a Fraction Kit



Grade Level

TOOLS

Pencil

Scissors

Strips of 3″×18″ construction paper

For Kit I you need 4 strips of different colors

For Kit II you need Kit I plus 3 more strips of different colors

Why

To see and understand the relative values of fractions by making physical representations

► *When young children are learning simple arithmetic, it is essential that they have many experiences with concrete materials, such as blocks, before they can truly understand the difference between three*  *and five* *. In the same way, making a physical model of fractions provides reinforcement for understanding the relative values of fractions.* ◄

How

To Make Kit I

□ Take 5 strips of different colors. With your children, compare the strips to be sure they are all the same length. Talk about the fact that the strips each represent "1 WHOLE" and that you will be cutting some into fractional parts.

□ Label one strip "1 WHOLE." (Note: It is often convenient to use a black strip for your whole.)

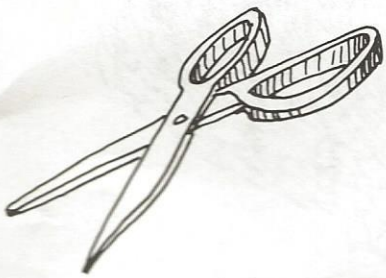
□ Take another strip and fold it carefully in half.

□ Fold by first lining up the edges of the strip and then creasing the fold.

How many sections will you have when you open your folded strip?

Open it and count.

□ Label each part 1/2 and cut on the fold line.



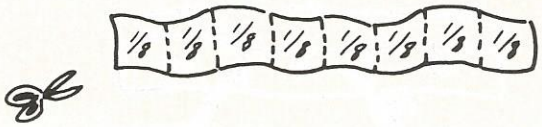
□ Take another strip and fold carefully in half two times.

Guess how many sections you will have when you open it.
Count the sections.

- □ Label each part 1/4 and cut them apart.

□ Take another strip. This time fold it in half **three** times.
Again, be very careful to fold accurately.
How many sections will there be this time?
Count to check.

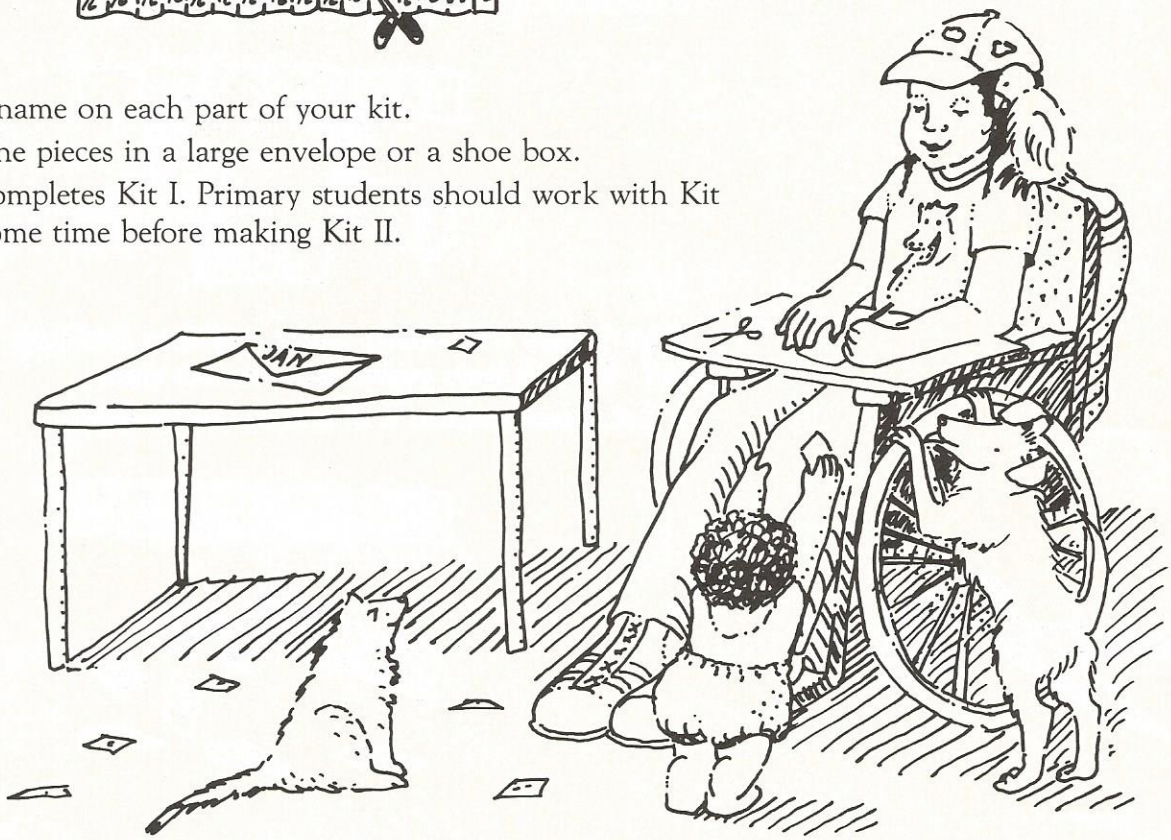
- □ Label each part 1/8 and cut them apart.



□ Continue with the last strip. Fold **very** carefully **four** times.
This time you will get one-sixteenth (1/16) for each section.

□ Put your name on each part of your kit.

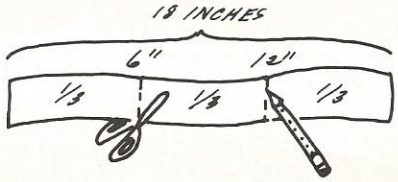
- □ Keep the pieces in a large envelope or a shoe box.
- □ This completes Kit I. Primary students should work with Kit I for some time before making Kit II.



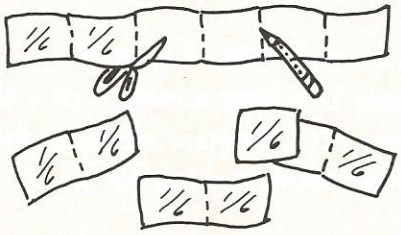
To Make Kit II:

- ☐ Kit II consists of Kit I plus the pieces made from three more 18-inch strips.

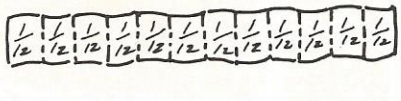
- ☐ Make Kit I.
- ☐ Take the next strip, measure and mark it with a pencil at 6″ and 12″ along the edge. Fold on these lines.
  - ☐ You will have three sections.
  - ☐ Label each 1/3 and cut them apart.

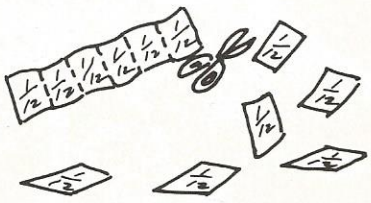


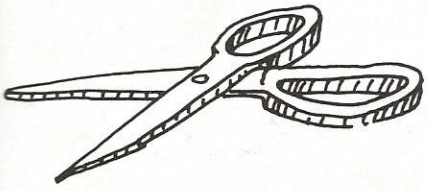
- ☐ Take the next strip. Make thirds and then fold each third in half.
  - ☐ How many sections do you have?
  - ☐ Label each section 1/6 and cut them apart.



- ☐ Take the last strip. Make sixths and then fold each sixth in half. You will have twelve sections this time.
  - ☐ Label each section 1/12 and cut them apart.



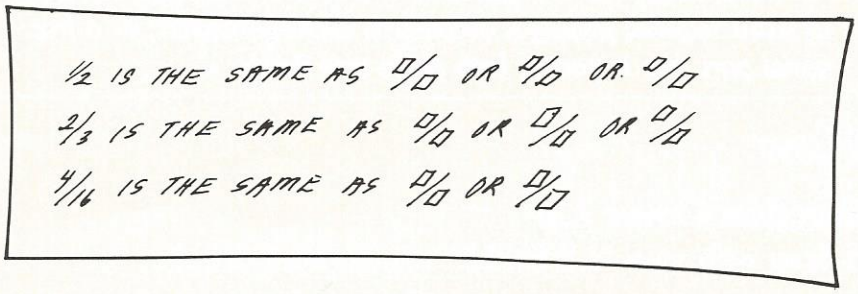


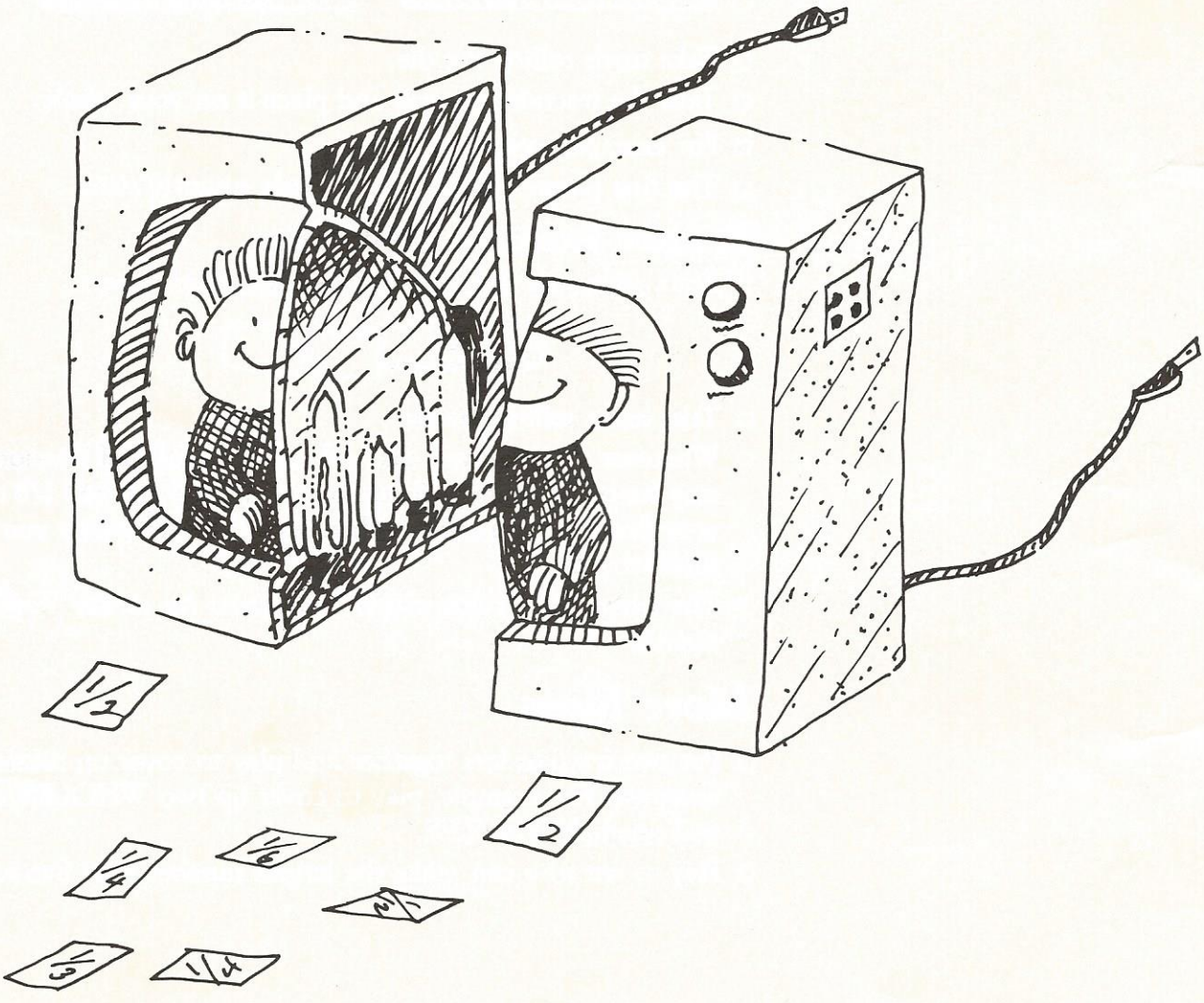


- □ Put your name on each part of your kit.
- □ Use your fraction kit to compare the sizes of different fractions and for Fraction Cover Up and other fraction activities.

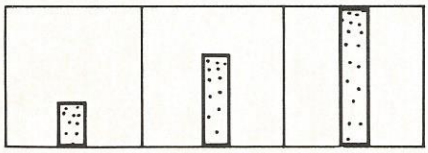
More Ideas

Equivalent Fractions are easily shown with these kits. For example, 1 WHOLE is the same as 2/2, 3/3, 4/4, etc. Explore with your children some other equivalent fractions, using your strips to check. Keep a record like this:





Fraction Kit Games



Grade Level

TOOLS

A Fraction Kit for each player (see pages 120-123)
One die labeled: 1/2, 1/4, 1/8, 2/8, 1/16, 2/16 for Kit I or
One die labeled: 1/3, 1/4, 1/6, 1/8, 1/12, 1/16 for Kit II

Games for 2–6 players

Why

To practice using fractional parts of a whole, recognizing relative sizes and **equivalent fractions**

► *Before your children can learn to add, subtract, multiply, or divide fractions, they must understand the relationship between different kinds of fractions.*

For example, in order to add 1/6+2/3, it is necessary to realize that 2/3 is the same as or ***equivalent*** *to 4/6. 1/6 added to 2/3 may not make sense, but 1/6 added to 4/6 is 5/6. Changing the thirds to sixths requires finding a* ***common denominator,*** *or a fractional part that is part of both sixths and thirds.* ◄

How

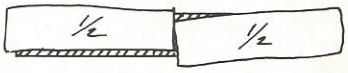
Fraction Cover Up

□ Start with your "1 WHOLE" strip in front of you.

□ Take turns rolling the die.
□ Take the fraction you roll and place it on your whole.
□ For example, you roll 1/4.
□ The first player to cover their whole **exactly** wins.

Fraction Exchange Subtraction

□ Start with your WHOLE covered with two halves.



□ Take turns rolling the die.
□ Whatever you roll, you take off (or subtract) that fraction. You may have to exchange first. For example, if you roll 1/8 on your first roll, you must exchange 1/2 for 4/8 before you can subtract 1/8.
□ The winner is the first player to uncover his or her WHOLE, exactly.

More Ideas

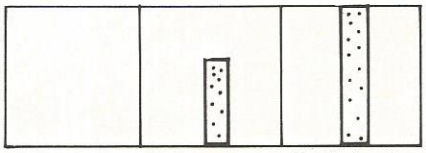
□ Put two fraction kits together and play to cover up different amounts. For example, play to cover up two WHOLES, or one and one-half WHOLES.
□ Play to see who can make the largest number after five turns.

Judy's Fractions

Why

To reinforce the understanding of fractions and mixed numbers

► ***Mixed numbers*** *are those that have a whole number and a fraction together.* ◄



Grade Level

TOOLS

Fraction Kit for each player (see pages 120-123)

Pennies

A game for
3–8 players

How

- □ Each player takes the equivalent of 6 wholes out of his or her fraction kit, using wholes, 1/2's, 1/3's, 1/4's, 1/6's, 1/8's, 1/12's, and 1/16's.
- □ At the beginning of each round, the players bet on whether the lead player will toss heads or tails.
- □ The players decide together how much to bet for the round, say 2 1/4. Each player puts that amount of fraction pieces into the pot and announces his or her bet: heads or tails.
- □ The lead player tosses the coin.
- □ The lead player divides the pot evenly among the winners. The winners are responsible for checking that they were given the correct amount.
- □ If an error was made, the lead player forfeits 1/4 extra for the next pot.
- □ If the pot cannot be divided evenly among the winners, the extra pieces can be left to sweeten the next pot—or traded for smaller pieces (1/12's or 1/16's) that can be divided evenly. For example, if 1/4 is left over with three winners, trade 1/4 for 3/12.
- □ Lead player passes to the left after each round.
- □ Play continues for a specified number of rounds, say 5 or 10; or a specified time, say 5 to 20 minutes; or until one player has won all of the other players' fraction pieces.