Subject: Mathematics   Grade: Third

Standard: #3 Fractions and Decimals

Key Concept: Students develop an understanding of fractions.

Generalization: Students show equivalent fractions using equal parts or sets.

Background:
  This lesson is adapted from <u>Constructing Ideas About Fractions</u>, Exploration
  2, Fraction Books, pages 8-13 (ISBN# 1-56107-810-7). Students should be
  familiar with a manipulative used to model fractions, such as Fraction Circles
  PLUS, Fraction Builder, or Fraction Islands. These manipulatives are available
  from a variety of sources including Creative Publications and Nasco. It would
  also be possible to use "homemade" manipulatives or a set constructed by the
  students themselves in a previous lesson.

  Students who have a minimal understanding of fractions should be placed in the
  Basic tier. Those who show an understanding of halves, thirds, fourths, sixths,
  and eighths should be placed in the ***Grade Level*** tier. Students who have
  demonstrated an understanding of halves, thirds, fourths, fifths, sixths,
  sevenths, eighths, ninths, and tenths should be placed in the ***Advanced*** tier.

  Each tier will produce the same product.

This lesson is tiered in ***content*** according to ***readiness***.

Tier I: ***Basic Learners***
  Students work with a partner and a commercially prepared fraction model with
  a limited number of parts. For instance, the Fraction Circles PLUS set contains
  wholes, halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths and
  you would limit the set to just the wholes, halves, thirds, fourths, sixths, and
  eighths.

Tier II: *Grade Level Learners*

> Students work with a partner and a commercially prepared fraction model. For instance, the Fraction Circles PLUS set contains wholes, halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths and students would work with the entire set.

Tier III: *Advanced Learners*

> Students work with a partner and a commercially prepared fraction model. For instance, the Fraction Circles PLUS set contains wholes, halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths. Students would construct additional pieces to represent ninths, fifteenths, eighteenths, and twenty-fourths or have students prepare their own model of all these fractions from a rectangle.

Each tier will complete the following activities with respect to their content.

> General directions for making the pages of a "Fraction Book":
> > Pick a fraction and make it with your fraction manipulatives.
> > Find equivalent fractions using your manipulatives.
> > Illustrate your findings on half sheets of paper using pictures, numbers, and symbols.

> Creating the fraction books:
> > Each tier will create the cover and chapter dividers for the book.
> > Pairs of students will contribute pages of equivalent fractions.
> > Each tier will sort the illustrations and verify that they are correct.
> > On the final day, each tier will bind their book.
> > Each tier will share the completed book with the class.

> This lesson should be done over several days and could be extended beyond a week.

Assessment:

> After sharing the results of the fraction books and a whole class discussion, all students should answer in writing a series of questions about the relationships among the fractions for their tier. Students should be encouraged to read each other's fraction books.