

Using Math Manipulatives to Teach Fraction Concepts

1. M&M Statistics

- 5.1.5: Explain different interpretations of fractions: as parts of a whole, *parts of a set*, and division of whole numbers by whole numbers.

2. Racing Dice

- 5.6.4: Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4, $\frac{3}{4}$).
- 6.6.4: Show all possible outcomes for compound events in an organized way and find the theoretical probability of each outcome.

3. Fractional Geo Board Designs

- 5.1.5: Explain different interpretations of fractions: *as parts of a whole*, parts of a set, and division of whole numbers by whole numbers.
- (7-8).5.5: Estimate and compute the area of irregular two-dimensional shapes by breaking them down into more basic geometric objects.

4. Fraction Towers (Fraction Tiles, Fraction Squares, Decimal Towers, Percent Towers)

- 5.2.2: Add and subtract fractions (including mixed numbers) with different denominators.
- 6.1.5: Recognize decimal equivalents for commonly used fractions without the use of a calculator.
- (7-8).2.4: Use mental arithmetic to compute with common fractions, decimals, powers, and percents.

5. Discovering the Division Algorithm for Fractions Using Power Blocks

- 5.2.3: Use models to show an understanding of multiplication and division of fractions.

6. Exploring Equivalent Representations of Partial Circles Using Fraction Circles

- 5.4.7: Understand that 90° , 180° , 270° , and 360° are associated with quarter, half, three-quarters, and full turns, respectively.
- 6.1.4: Convert between any two representations of numbers (fractions, decimals, and percents) without the use of a calculator.

7. Infinity Equals Negative One

- 8.1.2: Know that every rational number is either a terminating or repeating decimal and that every irrational number is a nonrepeating decimal.

8. Four 4's Challenge

- 6.2.3: Multiply and divide decimals.
- 8.2.1: Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) in multi-step problems.