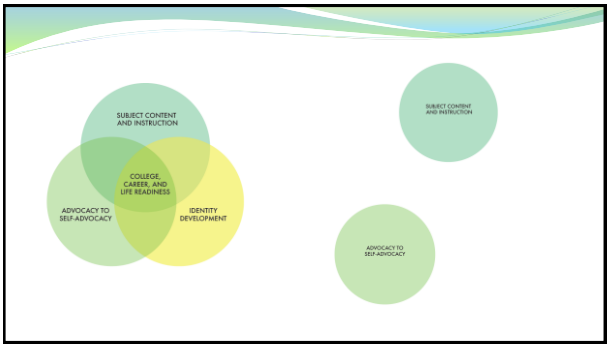
New York State Migrant Education Program Professional Development

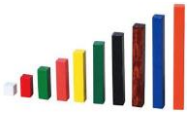
Visualizing Fractions

Modeling addition and subtraction using Cuisenaire Rods

- Part A-like denominators



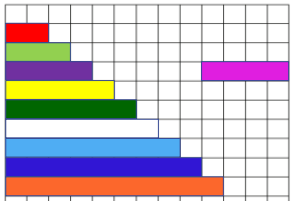
Visualizing Fractions



Modeling addition and subtraction using Cuisenaire Rods

Part A-like denominators

Cuisenaire Rods



Relationships of Part to Whole Using the Rods

Model 1 | Model 2 | Model 3

Moving From Concrete to Symbolic Using the Rods

If the whole is brown it takes four _____pieces to make a whole.
The fractional parts are _____.
The unit fraction is _____.

If the whole is blue, it takes three _____pieces to make a whole.
The fractional parts are _____.
The unit fraction is _____.

hand out

If the whole is brown it takes four red pieces to make a whole.
The fractional parts are fourths.
The unit fraction is $\frac{1}{4}$.

If the whole is blue, it takes three lt. green pieces to make a whole.
The fractional parts are thirds.
The unit fraction is $\frac{1}{3}$

Relational Understanding of Fractions Using the Rods

- **Showing equivalence**

Use the BROWN rod for the whole.

- **Comparing and ordering**

Use the DARK GREEN rod for the whole.

Moving From Concrete to Symbolic Using the Rods

If the whole is brown:

The purple represents _____. _____ + _____ = ____ = 1

The red represents _____. _____ + _____ = ____ = 1

The white represents _____. _____ + _____ = ____ = 1

$\frac{1}{2} = \_\_$ $\frac{1}{2} = \_\_$ $\frac{1}{2} = \_\_$

$\frac{1}{2} > \_\_$ $\frac{1}{2} > \_\_$ $\frac{1}{2} < \_\_$ $\frac{1}{2} < \_\_$

hand out

If the whole is brown:

The purple represents $\frac{1}{2}$. $\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$

The red represents $\frac{1}{4}$. $\frac{2}{4} + \frac{2}{4} = \frac{4}{4} = 1$

The white represents $\frac{1}{8}$. $\frac{4}{8} + \frac{4}{8} = \frac{8}{8} = 1$

$\frac{1}{2} = \frac{2}{4}$ $\frac{1}{2} = \frac{4}{8}$ $\frac{1}{2} = \_\_$ $\frac{3}{6}, \frac{5}{10}$ (patterns)

$\frac{1}{2} > \frac{1}{4}$ $\frac{1}{2} > \frac{1}{8}$ $\frac{1}{2} < \frac{3}{4}$ $\frac{1}{2} < \frac{5}{8}$

Moving From Concrete to Symbolic Using the Rods

If the whole is dark green:

The light green represents _____. _____ + _____ = ____ = 1

The red represents _____. _____ + _____ + _____ = ____ = 1

The white represents _____. _____ + _____ + _____ = ____ = 1

What would you come up with as examples of comparing fractions with equivalence and comparison?

hand out

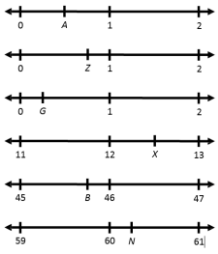
If the whole is dark green:

The light green represents _____, _____ + _____ = _____ = 1

The red represents _____, _____ + _____ + _____ = _____ = 1

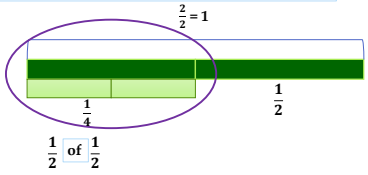
The white represents _____, _____ + _____ + _____ = _____ = 1

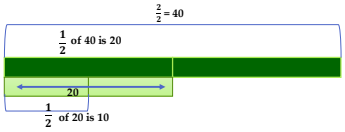
What would you come up with as examples of comparing fractions with equivalence and comparison?



hand out

Modeling Situations Using Mathematics and the Rods





There were 40 kids on a school bus. Half of the kids brought their own lunch. Half of the kids who brought a lunch also brought a snack. How many kids brought a lunch and a snack?

Addition of Fractions with Like Denominators Using the Rods

$$\frac{5}{6} + \frac{2}{6}$$

Dark Green

Addition of Fractions with Like Denominators Using the Rods

Independent Practice

$$\frac{4}{3} + \frac{2}{3}$$

Blue

$$\frac{3}{5} + \frac{4}{5}$$

Orange

Subtraction of Fractions with Like Denominators Using the Rods

$$\frac{5}{4} - \frac{1}{4}$$

Brown

Subtraction of Fractions with Like Denominators Using the Rods

Independent Practice

$$\frac{4}{8} - \frac{1}{8}$$

Brown

$$\frac{5}{6} - \frac{3}{6}$$

Dark Green

A virtual lesson using the rods

ANNENBERG LEARNER
Teacher resources and professional development across the curriculum

SESSION 8 Rational Numbers and Proportional Reasoning

IN THIS SESSION

Part A: Interpreting Fractions, Units, and Unitizing
Part B: Fractions With Cuisenaire Rods
Part C: Absolute and Relative Reasoning
Homework

Visualizing Fractions

- Were you able to "see" adding and subtracting happen without using traditional rules and algorithms?