

Pre 2.0b

Cuisenaire Fractions

Part I: Cuisenaire Staircases:

Make a 1-12 color staircase using one of each color rod. Fill in the values below as related the whole. Note that the value of the whole is changing. The value of each piece varies as the value of the whole changes.

White =	1											
Red =		1										
Light. Green =			1									
Purple =				1								
Yellow =					1							
Dark. Green =						1						
Black =							1					
Brown =								1				
Blue =									1			
Orange =										1		
Orange + White =											1	
Orange + Red =												1

1) What patterns did you discover? Look for more! Write about your observations below.

2) Try these riddles.

a) I am a rod. I am $\frac{1}{2}$ of brown. I am $\frac{1}{3}$ of orange + red. What am I?

b) We are two rods. $\frac{1}{2}$ of one rod plus $\frac{1}{3}$ of the other rod equals red. What are the two rods?

c) Make up a riddle of your own. Trade with the members of your group. Solve each other's riddles.

Part II Fractions and Algebra with Cuisenaire Rods

- I. Take a yellow rod and an orange rod. If you line them up together, you will see that the yellow rod is $\frac{1}{2}$ of the orange rod.
- You could write this relationship like this: $\frac{1}{2}$ of orange = yellow or yellow = $\frac{1}{2}$ orange.
 - Using algebra, you would write this relationship like this: $\frac{1}{2} O = Y$ or $O = 2Y$
- a) Find all the half relationships among the different colored rods. Record those relationships in algebraic form. Then reverse the equation as above—you should have two equations for every relationship.
- b) Find all the third relationships among the different colored rods. Record those below.
- c) Find all the fourth relationships and record them below.
- d) Find all the fifth relationships and record them below.
- e) Sixths
- f) Sevenths
- g) Eighths
- h) NINTHS
- i) Tenths

II. Examine the relationships between the following rod pairs. Record that relationship two different ways using algebra. Be prepared to explain your thinking.

j) red and light green

k) red and blue

l) purple and orange

m) purple and yellow

n) orange and dark green

III. If it takes 20 light green rods to measure across a desk, figure out how many rods of different lengths it will take to measure across a desk. Use what you know about the rod relationships to figure out the answers below—DO NOT MEASURE.

Reason out your answers—WRITE YOUR REASONING BELOW.

o) How many dark green?

p) How many red?

q) How many white?

r) How many blue?