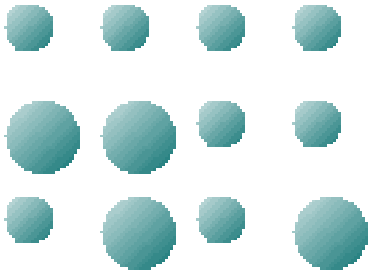
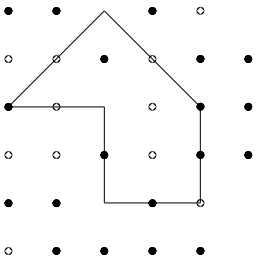
Defining Equal Parts

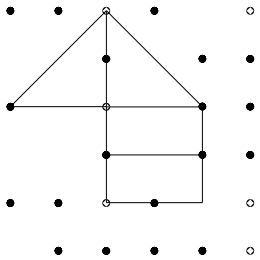
1. Matteo says that he can't show $\frac{1}{3}$ of these marbles because some of the marbles are big and some are little. What do you think? Are there any other fractions of these marbles that can be shown? If so, what would each equal part look like? If not, explain why not.



2. A worksheet asked children to "show 4 equal parts" and showed a picture like the one on the left in the next figure. Arianna's response is on the right. Can her work be considered correct? What definition of "equal parts" is relevant to considering Arianna's solution correct?



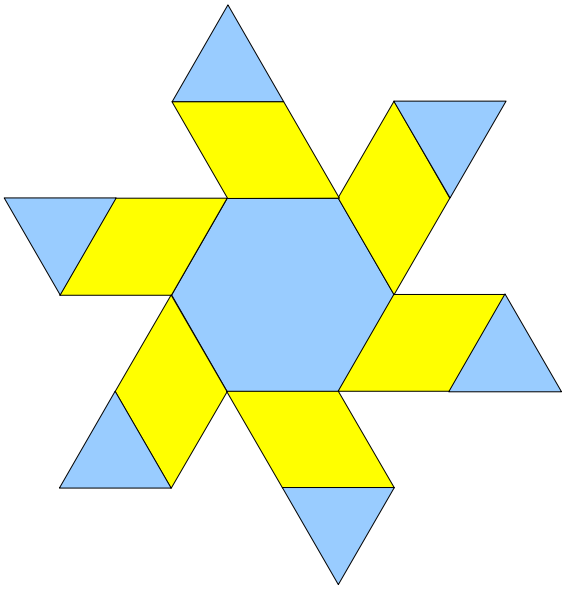
original problem



Arianna's solution

(Adapted from Beckmann, S. (2011). *Mathematics for Elementary Teachers: Activity Manual*. Boston: Addison-Wesley.)

3. Identify as many "fractions" in the following shape as you can. For example, you can ask "what fraction of the figure is made up of triangles," but keep in mind any ambiguities that might come up. (It might be useful to use pattern blocks for this).



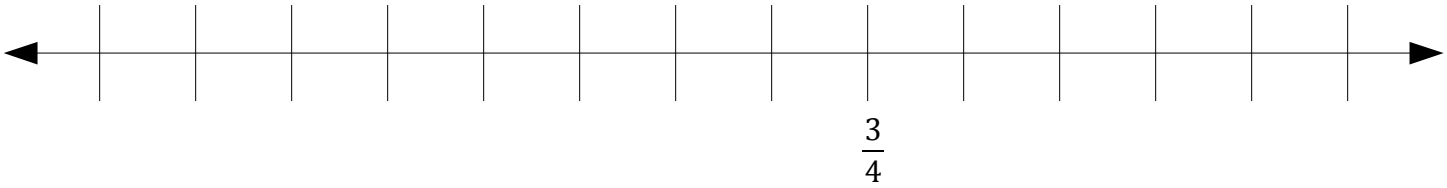
4. Determine what fraction each pattern block in each row of the table is of each pattern block in each column of the table.

Each pattern block below is ___ of the each pattern block to the right.	**Yellow hexagon**	**Red trapezoid**	**Blue rhombus**	**Green triangle**	**White rhombus**
Yellow hexagon	**1**				
Red trapezoid		**1**			
Blue rhombus			**1**		
Green triangle				**1**	
White rhombus					**1**

(Adapted from Beckmann, S. (2011). *Mathematics for Elementary Teachers: Activity Manual*. Boston: Addison-Wesley.)

Fractions on Number Lines

1. Label each tick mark on the number line so that the fraction $\frac{2}{3}$ lands on a tick mark. Clearly mark where 0 and 1 would be.



2. Place equally-spaced tick-marks on the number line so that $\frac{5}{4}$ lands on a tick mark. Clearly mark where 0 and 1 would be.

3. What meanings of "fraction" are addressed by these problems? What standards (if any) are addressed by these problems?

(Adapted from Beckmann, S. (2011). *Mathematics for Elementary Teachers: Activity Manual*. Boston: Addison-Wesley.)