

## Divide and Conquer!

### Activity 1

Create a diagram to represent the situations.

1. Emily has three good friends. The four friends go on a hike together. Emily's dad sends along a small bag of caramel candy bars. There are 12 candy bars in the bag. How much does each get if they share them equally?
2. There will be 360 students going on a field trip and each school bus carries 30 students. How many buses will be needed?
3. How are problems 1 and 2 alike? How are they different?

How are the diagrams alike for each problem? How are they different?

4. In problem 1, we think of the situation as 12 candy bars to be shared by 4 students, so the quotient means \_\_\_\_\_ per \_\_\_\_\_.
5. In problem 2, we know 360 students will be placed on buses in groups of 30 so the quotient means \_\_\_\_\_ groups of \_\_\_\_\_.

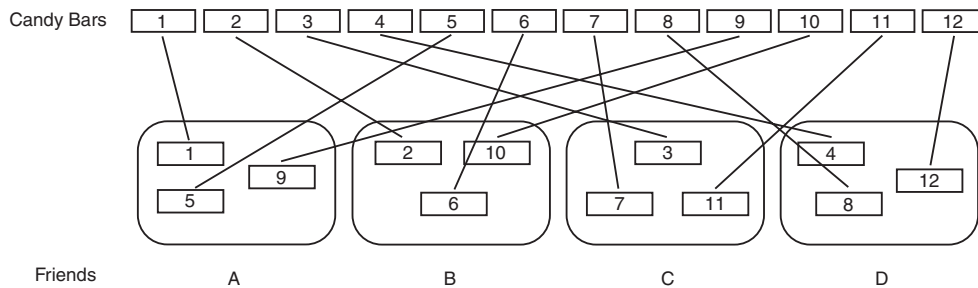


## Teacher notes for Activity 1

Below are some diagrams that students may produce.

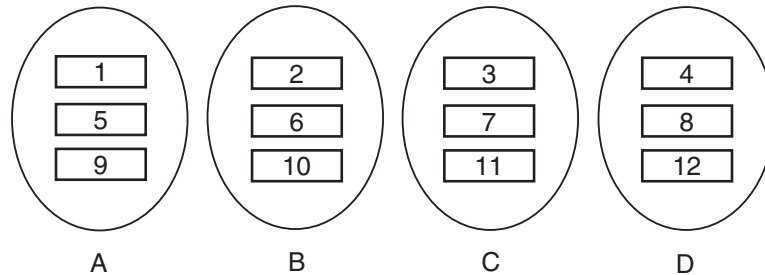
1. Emily has three good friends. The four friends go on a hike together. Emily's dad sends along a small bag of caramel candy bars. There are 12 candy bars in the bag. How much does each get if they share them equally?

**Diagram 1**



**Diagram 2**

Distributing Twelve Candy Bars



**Diagram 3**

$12 \text{ (bars)} - 4 \text{ (one for each person)} = 8 \text{ (bars left)}$

$$8 - 4 = 4$$

$$4 - 4 = 0$$

We subtracted three groups of four, so each person gets three candy bars.



In diagram 1, the student has arranged the 12 candy bars in a row and distributed them one by one to the circles representing the four friends. This is like dealing out the candy bars one by one among the four friends until they are all gone.

In diagram 2, the student has made an array that is four columns long to represent the four students. Then the student has made as many rows of four candy bars as possible and can circle each friend's share.

In diagram 3, the student has used repeated subtraction to find the answer. The student may have reasoned something like this: "We have 12 candy bars and four friends, so it takes four bars to give each person one candy bar. We can just keep subtracting four until we have nothing left."

2. There will be 360 students going on a field trip. Each school bus carries 30 students. How many buses will be needed?

### Diagram A

One way to figure buses for 360 students is



### Diagram B

$$\begin{array}{r}
 360 \\
 \underline{-300} \quad 10 \times 30 \\
 60 \\
 \\
 60 \\
 \underline{-60} \quad 2 \times 30 \\
 0 \\
 \text{makes 12 buses}
 \end{array}$$



