1. Suppose we want to count:

   (a) The number of ways to rearrange the letters KIBO.

   (b) The number of ways to rearrange the letters KIBO where K is not the first letter.

   (c) The number of ways to rearrange the letters KIBO where none of the letters are in the position they are currently in.

   Which of these problems should have the largest answer? Which is the smallest?

2. Solve all of the problems from problem 1. What technique did you use to solve them?

3. Consider the act of rolling 2 6-sided dice labeled 1,2,3,4,5, and 6 on their faces.

   Create a chart of the possible sums of these dice when rolled. What do you notice about this chart? How would you have counted the number of ways to roll a specific sum (say, 7)?

4. Suppose there are 50 people in our class. Using pigeonhole principle, find the following:

   (a) What is the minimum number of people who were born on the same day of the week?

   (b) What is the minimum number of people that are born in the same month?

   (c) What is the minimum number of people that have the same eye color?