#### **Things to Think About**

• Suppose the average age (mean) for students in the class is 21 years. Then what do we know about the distribution of students' ages for this class (e.g., Are they all about 21 years old?)? Explain.

• Where does that number (21) come from? Explain.

# Part I: Post-It<sup>®</sup> Note Dot Plots

In your groups, you will take 10 Post-It<sup>®</sup> Notes and stack them on the *Age Scale* to form a dot plot according to the directions provided. Each dot plot will be created so that the 10 ages (Post-It<sup>®</sup> Notes) average to 21 years.

1. Of course, the easiest way to do this is to stack them all above the value of 21. **Do it**. What does the plot look like in terms of shape, center, and spread?

2. Move one Post-It<sup>®</sup> Note to 24 years. How can you move *one or more* of the other Post-It<sup>®</sup> Notes so that you keep the mean at 21 years? Is there more than one way to do this? Explain.

3. Next, move one Post-It<sup>®</sup> Note to 17 years. Describe what else you had to do to keep the mean at 21 years.

4. Next, move all the Post-It<sup>®</sup> Notes so that none of the ages are 21 years, yet the mean age is still 21 years. Describe what you did.

### <u>Part II</u>

Draw graphs of *two* different dot plots below such that:

- Each graph has 10 values (10 dots).
- The mean of the values in each dot plot is 21.
- One dot plot has a *little spread* and the other dot plot has *a lot of spread*.



## Things to Consider

• What strategies did you use to keep a mean of 21 in each plot?

• Was it important to pay attention to the distance of each Post-It<sup>®</sup> Note from the mean value of 21? How did this help you to keep the mean of 21 years?

# <u>Part III</u>

We will use the term "**deviation**" to represent the distance of each data value from the mean. This can also be viewed as the number of units to the left or right of the mean for each data value.

1. Look at your last Post-It<sup>®</sup> Note plot, and write down the deviations for each data point on the graph.

Post-It <sup>®</sup> Number	Age	Deviation
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

2. If you decrease one value by three, how much does it's deviation change by?

3. Now, what do you have to do one or more values to keep the mean at 21 years?