Sampling Rectangles

The goal of this activity is to understand what is meant by a *simple random sample* and to recognize the variability in subjective and random sampling techniques.

Please refer to the activity sheet *Random Rectangles* to complete the following:

1. Look at the rectangles on the activity sheet. Each small square has an area of one. Select 10 rectangles that you think would give a good representation (i.e., a representative or "typical" sample) of all of the rectangles on the sheet.
   a. Record the numbers of the rectangles that you chose and give their corresponding areas.
   b. Compute and record the sample mean area for the 10 rectangles that you selected.

"Typical" Rectangles

Number of rectangle	Area	Number of rectangle	Area
1. _____	_____	6. _____	_____
2. _____	_____	7. _____	_____
3. _____	_____	8. _____	_____
4. _____	_____	9. _____	_____
5. _____	_____	10. _____	_____

Sample mean area of the "typical" rectangles _____

2. Generate 10 random numbers between 1 and 100 by using a random number generator on a calculator or a random number table. If a number repeats, discard it, and generate another one to replace it.
   a. Use these random numbers to locate the 10 rectangles that have the corresponding numbers on the sheet, and record their areas.
   b. Compute and record the sample mean area of the 10 rectangles "selected" by the random numbers.

Random Rectangles

Number of rectangle	Area	Number of rectangle	Area
1. _____	_____	6. _____	_____
2. _____	_____	7. _____	_____
3. _____	_____	8. _____	_____
4. _____	_____	9. _____	_____
5. _____	_____	10. _____	_____

Sample mean area of the random rectangles _____

Source: *Navigating through Data Analysis in Grades 9–12*, NCTM

3. Record the sample means of the “typical” rectangles and the random rectangles from each member of your group.

“Typical” Rectangle Mean Area	Random Rectangle Mean Area
_____	_____
_____	_____
_____	_____
_____	_____