Simulation: Sequence of _____ _____ that model a situation. You will use random numbers that correspond to the true real-world relative frequencies we are trying to model.

Component: The most _____ _____ in a simulation that has a random outcome. The individual result of a component is its _____.

Trial: The sequence of several _____ representing real events that we pretend will take place.   During each trial, the results recorded are the values of the

_____

Steps to Follow When Working With Random Problems

- **Components**: Identify all components and state how you will model the random occurrence of an outcome

- **Trial**: Define a trial. *Be sure NOT to use repeated numbers – if the situation calls for it.*

- **Response Variable**: Define your response variable.

- **Statistic**: Identify what statistic you will use to identify if the problem is random

1. Suppose a basketball player has an 80% free throw success rate. How can we use random numbers to simulate whether or not she makes a foul shot? How many shots might she be able to make in a row without missing? Describe the waiting time simulation of having her shoot free throws until she misses, counting the number of successes.

2. Use the problem above and discuss how things would change with each event below.

a. How would our simulation procedure change if her success rate were only 72%?

b. How would a trial and our response variable change if we wanted to know how many shots she might make out of 5 chances she gets at a crucial point in the game?

c. How would a trial and our response variable change if we want to know her chances of hitting both shots when she goes to the line to shoot two?

d. How would the simulation change if we want to know her score in a 1-and-1 situation? (Here she gets to try the second shot only if the first shot is successful.)