

Rule 3 – Perform many repetitions of each trial. A trial is a series of steps that stops when the situation of interest has been completed one time. The values that you get from many trials will be used to answer a probability question. In this case, one trial would be 10 tosses of a football. If we use a die to simulate the 10 tosses of the football, we would roll a die 10 times or if we used a coin we would flip the coin 10 times.

It is important to record the number of successes (what you are interested in happening) after each repetition and each trial.

- d) Use each of the 3 devices (the coin, the die, and the deck of cards) and perform 1 trial with each device. Again, in this case, we are defining a trial as 10 flips of a coin, 10 rolls of the die, and the picking of 10 cards (with replacement) from a deck of cards. Record the number of successes for your 3 trials.

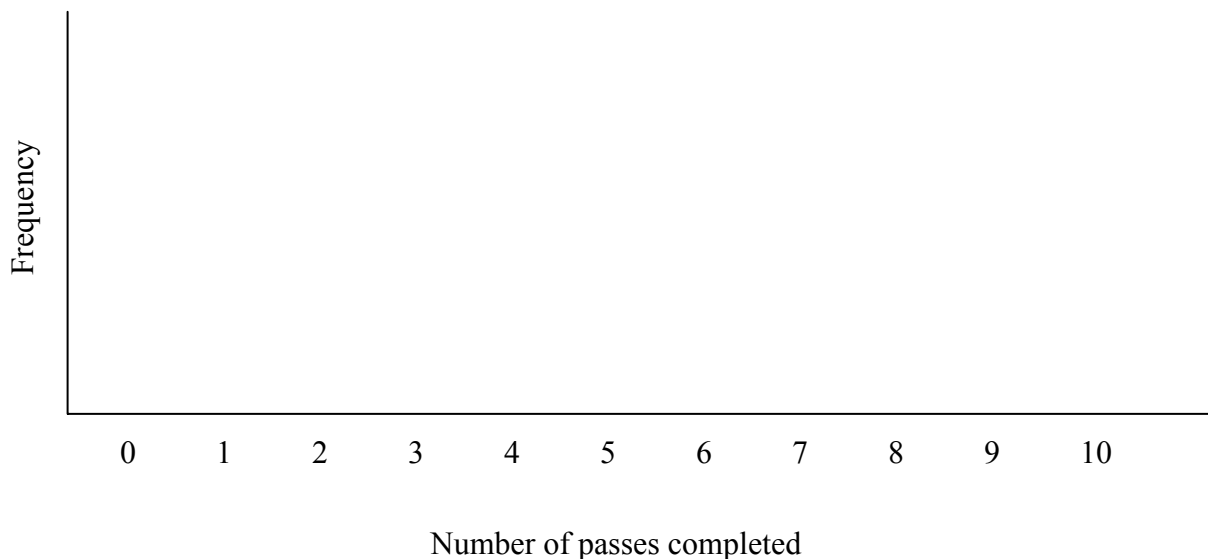
Trial	# of successes per trial	Fraction of successes	Percent of successes
1			
2			
3			

- e) Pick one of the 3 methods from above and use that method to run 12 more trials. Record the number of successes on each trial. Remember, this means how many times out of 10 you got the desired outcome.

Trial	# of successes per trial
4	
5	
6	
7	
8	
9	

Trial	# of successes per trial
10	
11	
12	
13	
14	
15	

Each pair of students should put their results on the line plot on the board and then copy the results to their graph on the paper below.

Class Results:

Use the line plot of the pooled class's data above to answer the following questions.

- f) Estimate the probability that the quarterback completes all passes.
- g) Estimate the probability that the quarterback completes exactly five passes.
- h) Estimate the probability that the quarterback completes at least five passes.
- i) Without using the values you got in the simulation, what would you expect to be the average number of completed passes per game? Explain how you got this answer.
- j) Calculate the average frequency of pass completions from the class's pooled data. You should use the data from your line graph. Does it seem that the average of the class's data is close to your expectation from part (i)?