

**AP Statistics Chapter 11
Simulation Practice**

#1: Three Children Families

A family doctor is told by a couple that they wish to have three children and that they wonder what the possibility of having all of one sex of a child will be. They think that it will be the same as having 2 girls and 1 boy or having 2 boys and 1 girl. The doctor gives them an assignment to simulate having three children to answer their question.

1. Write instructions for conducting one simulation trial.

Identify events & their probabilities:

State random generator:

Assign numbers to events:

One trial equals....:

Total # of trials:

2. Perform the trials and record the results:

39634 62349 74088 65564 16379 19713 39153 69459 17986 24537 14595

35050 40469 27478 44526 67331 93365 54526 22356 93208 02746 20469

Type of Family (# girls)	Frequency (#)	Rel. Freq (%)
No girls ($X = 0$)		
One girl and two boys ($X = 1$)		
Two girls and one boy ($X = 2$)		
Three girls ($X = 3$)		
Total Number of Trials		

3. What is the probability of having all of one sex? (3 girls or 3 boys)

#3: Football

A quarterback completes 65% of his passes. Suppose he attempts 12 passes in a game.

1. Write instructions for conducting one simulation trial that shows the results for each of the twelve passes in a game.

Identify events & their probabilities:

State random generator:

Assign numbers to events:

One trial equals....:

Total # of trials:

2. Conduct 6 trials using the following table of random digits. Be sure to label your results.

80583 70361 41047 26792 78466 03395 17635 09697 82447 31405 00209 90404

99457 72570 42194 49043 24330 14939 09865 45906 30734 71571 83722 79712

25775 65178 07763 82928 31131 30196 02740 03750 07304 96621 10472 03745

3. Based on your simulation what is the mean number of passes he will make in a game?

#4: A receiver on the same team catches the ball 78% of the time. The coach has told him he will stay in the game unless he drops a pass- then he will be benched for the rest of the game. He usually has 9 passes thrown to him in a game.

1. Write instructions for conducting one simulation trial (like above).
2. Conduct 10 trials using the following table of random digits. Be sure to label/record your results.

05409 20830 01911 60767 55248 79253 12317 84120 77772 50103 95836 22530

91785 80210 34361 52228 33869 94332 83868 61672 92749 09287 02756 01846

3. Based on your simulation what is the chance he will get benched in a game?