## Recipe for Success: Simulations

1. Read the entire problem
2. Identify the Question
3. Identify and define a success and component in context
4. Identify a Trial
5. Model the simulation

What is being asked?
Explain what the question is asking in your own words

- Success: What we want to happen
- Component: What is being repeated

How many successes are required?
Assign 1 or 2 digit numbers in proportion to the chance of success and failure.

- $00=0$ or $100 ; 01=1 ; 02=2 ; 03=3 \ldots 09=9$
- $10=10 ; 11=11$... $99=99$
- Assign the numbers to be skipped or ignored

Are repeats permitted: Can something occur twice?

- Percentages-usually can be duplicated
- Specific items-usually cannot be duplicated (Occurs when the quantities of items are known)

1. Explain how to run a trial

- Beginning from left to right I would select 1 or 2 digit numbers until there were ___ number of successes.
- Count how many 1 or 2 digit values that were not skipped.

2. Tell how many trials are going to be run
3. Find the average/mean of all the trials
4. Run the simulation \& Make a Table

| Trial <br> Number | Number of 2 Digit <br> Values Counted <br> (successes) |
| :---: | :--- |
| 1 |  |
| 2 |  |
| 3 |  |
|  | Total |

9. Calculate the Expected number

- Draw a line through the values that represent failures
- Circle the values that represent successes
(Do not forget about duplicates are they permitted or not)
- Mark an X through Skips
(These are numbers that are not possible-
for instance when duplicates are not permitted)
- Draw a vertical line at the end of a trial
- Count the number of 2 digit numbers in the trial
- Record the values in a table
- Repeat for all necessary trials to complete the simulation

Take the average/Mean
Sum the number of successes counted for each trial

- Divide by the number of trials


## Conclusion:

Based on the simulation above, on average we would expect to have

