

# TUESDAY, MAY 7, 2019

- Warm-up

- Examine this portion of a random number table:

2 4 <del>X</del> 0 3	1 8 6 5 6	4 2 0 3 0	9 1 4 9 6
7 6 8 6 3	0 5 6 8 2	5 0 7 4 5	6 7 3 6 3
0 9 5 8 1	7 3 0 9 9	8 7 7 7 7	1 6 2 7 2
0 2 6 8 6	2 5 5 4 1	5 9 8 1 0	1 5 2 9 7
4 1 2 9 0	8 6 7 0 3	3 8 2 5 1	8 4 1 4 1
1 5 8 0 9	5 7 3 5 6	5 0 2 0 3	6 6 5 0 3
9 7 6 2 5	9 2 6 3 5	0 3 1 9 3	9 7 2 6 3
2 1 0 9 6	0 1 8 5 5	2 2 6 8 6	0 6 6 6 3

1-6

10 distinct digits 1-9, 0

160

a. How many digits are in the table? About how many 6s would you expect to find? How many are there? 23-24

16 expected

b. About what percentage of digits in a large table of random digits will be even? 0, 2, 4, 6, 8 even 1, 3, 5, 7, 9 odd 50%

- Simulations – what makes sense?
- Simulation lab

## Objectives

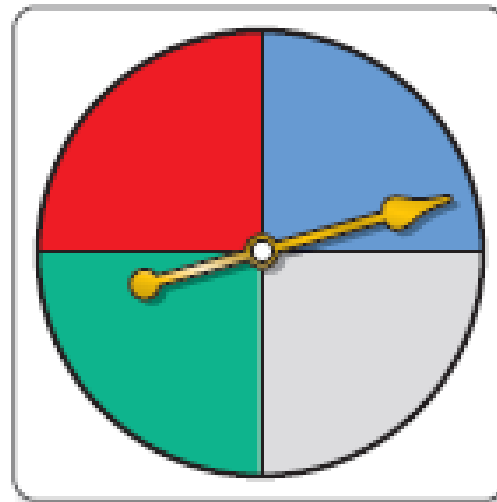
**Content:** I will use a coin random number table, and calculator to simulate an experiment.

**Social:** I will do my best in class.

**Language:** I will use the correct vocabulary during the simulations and analysis of a simulation.

Explain how you can use the table of random digits in Problem 1 to simulate each situation given below. (You may have to disregard certain digits.) Then perform one run of your simulation.

- Flip a coin and see if you get heads or tails.
- Observe five coin flips and record how many heads you get.
- Observe whether it rains or not on one day when the prediction is 80% chance of rain.
- Select three cars at random from a large lot where 20% of the cars are black, 40% are white, 30% are green, and 10% are silver, and record the color.
- Spin the spinner shown here four times and record the colors.
- Roll a die until you get a 6 and record the number of rolls you needed.
- Select three different students at random from a group of ten students. How is this problem different from the others you have done?
- Select three different students at random from a group of seven students.



Handwritten notes in blue ink:  
→ 00-79 R  
80-99 no  
84  
100  
1-8 R  
9,0 no

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# Simulation Lab

$$P(H) = \frac{1}{2} \approx 0.5$$

↑ Fraction
↑ decimal



Math 2 – Simulation Lab

Name \_\_\_\_\_

80777	84395	695
69273	72532	7834
72944	96463	63533
88606	61406	38757

Random Number \_\_\_\_\_



We have several ways to generate random numbers:

With a single coin –  $P(H) = \frac{1}{2}$

With a single die –  $P(2) = \frac{1}{6}$

With the spinner –  $P(4) = \frac{1}{5}$

With a card –  $P(\text{Face}) = \frac{12}{52}$

With a random number table –  $P(\text{odd}) = \frac{5}{10}$

With a calculator –  $P(\text{even}) = \frac{5}{10}$

What about a dice roll? Why/why not?

Could he use a deck of cards?

Would the random number table work?

Other ideas?

Lebron decided to use a dice roll and count rolls of 2, 3, 4, 5, or 6 as a made shot –  $P(2, 3, 4, 5, \text{ or } 6) = \frac{5}{6} \approx 83.3\%$

Here is his table to simulate how many Curry made in the game.

Sample Size	Number of "shots made"	Percent of "shots made"
4	3	75%
12	10	83.3%
30	24	80%
50	42	84%

According to my simulation, will he demonstrate his free throw percentage?

Is this a good model of his situation? Why/why not?

Giannis Antetokoumpo has a free throw percentage of 72.3%, design a simulation for his success in a game. Describe that simulation, run it, then evaluate it.

<u>Design</u>	<u>Data</u>	<u>Evaluation</u>																		
	<table border="1" style="width: 100%;"> <thead> <tr> <th>Sample Size</th> <th>Number of "shots made"</th> <th>Percent of "shots made"</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Sample Size	Number of "shots made"	Percent of "shots made"																
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There is a new player to the NBA: Raymond Matkin, we do not know his free throw percentage. Use a coin flip to simulate it. Does that seem reasonable, why or why not?

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