Monday, October 15, 2018

- Warm-up
  - Choose a random number between 1 and 10 (write it down)

- Preview of next chapter

- Randomness...

AP Stats
Unit 4: Randomness & Simulations
Chapter 11

15	16	17	18	19
11.1 Intro to Randomness HW: p 265 (3-8)	11.2 Random Number Tables HW: p 265(9-12)	17	11.3 Calculator Randomness HW: p 265(15, 16)	NO SCHOOL Teacher Inservice
22 11.4 Simulation Poster Work Day	23 11.5 Present Posters **Simulation Quiz**	24	25	26

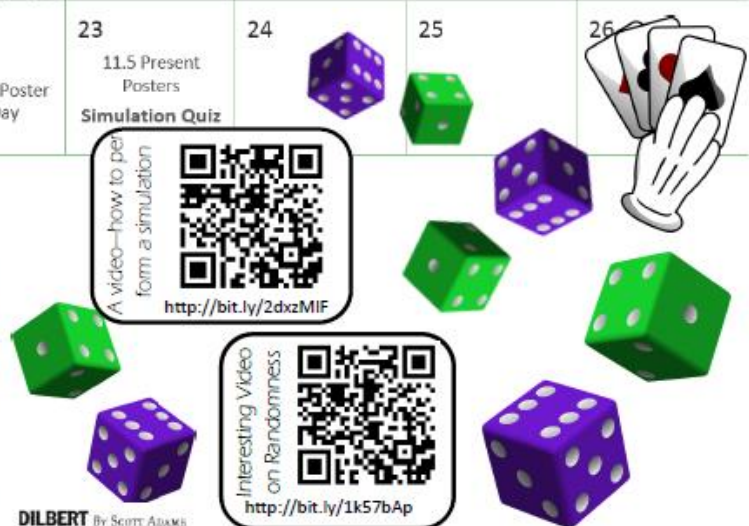## SIMULATION STEPS

1. Identify the component to be repeated
2. Explain how you will model the component's outcome
3. Explain how you will combine the components to model a trial
4. State clearly what the response variable it
5. Run several trials
6. Collect and summarize the results of all the trials
7. State your conclusion

A video—how to perform a simulation
http://bit.ly/2dxzMlF

Interesting Video on Randomness
http://bit.ly/1k57bAp

DILBERT By SCOTT ADAMS

TOUR OF ACCOUNTING

OVER HERE WE HAVE OUR RANDOM NUMBER GENERATOR.

NINE NINE NINE NINE NINE NINE

ARE YOU SURE THAT'S RANDOM?

THAT'S THE PROBLEM WITH RANDOMNESS YOU CAN NEVER BE SURE.

www.dilbert.com

Line								
101	19223	95034	05756	28713	96409	12531	42544	82853
102	73676	47150	99400	01927	27754	42648	82425	36290
103	45467	71709	77558	00095	32863	29485	82226	90056
104	52711	38889	93074	60227	40011	85848	48767	52573
105	95592	94007	69971	91481	60779	53791	17297	59335
106	68417	35013	15529	72765	85089	57067	50211	47487
107	82739	57890	20807	47511	81676	55300	94383	14893
108	60940	72024	17868	24943	61790	90656	87964	18883
109	36009	19365	15412	39638	85453	46816	83485	41979
110	38448	48789	18338	24697	39364	42006	76688	08708
111	81486	69487	60513	09297	00412	71238	27649	39950
112	59636	88804	04634	71197	19352	73089	84898	45785
113	62568	70206	40325	03699	71080	22553	11486	11776
114	45149	32992	75730	66280	03819	56202	02938	70915
115	61041	77684	94322	24709	73698	14526	31893	32592
116	14459	26056	31424	80371	65103	62253	50490	61181
117	38167	98532	62183	70632	23417	26185	41448	75532
118	73190	32533	04470	29669	84407	90785	65956	86382
119	95857	07118	87664	92099	58806	66979	98624	84826
120	35476	55972	39421	65850	04266	35435	43742	11937

Why Be Random?

- **What is it about chance outcomes being random that makes random selection seem fair? Two things:**
  - **Nobody can guess the outcome before it happens.**
  - **When we want things to be fair, usually some underlying set of outcomes will be equally likely (although in many games some combinations of outcomes are more likely than others).**

- **Statisticians don't think of randomness as the annoying tendency of things to be unpredictable or haphazard.**

- **Statisticians use randomness as a tool.**

- **But, truly random values are surprisingly hard to get…**

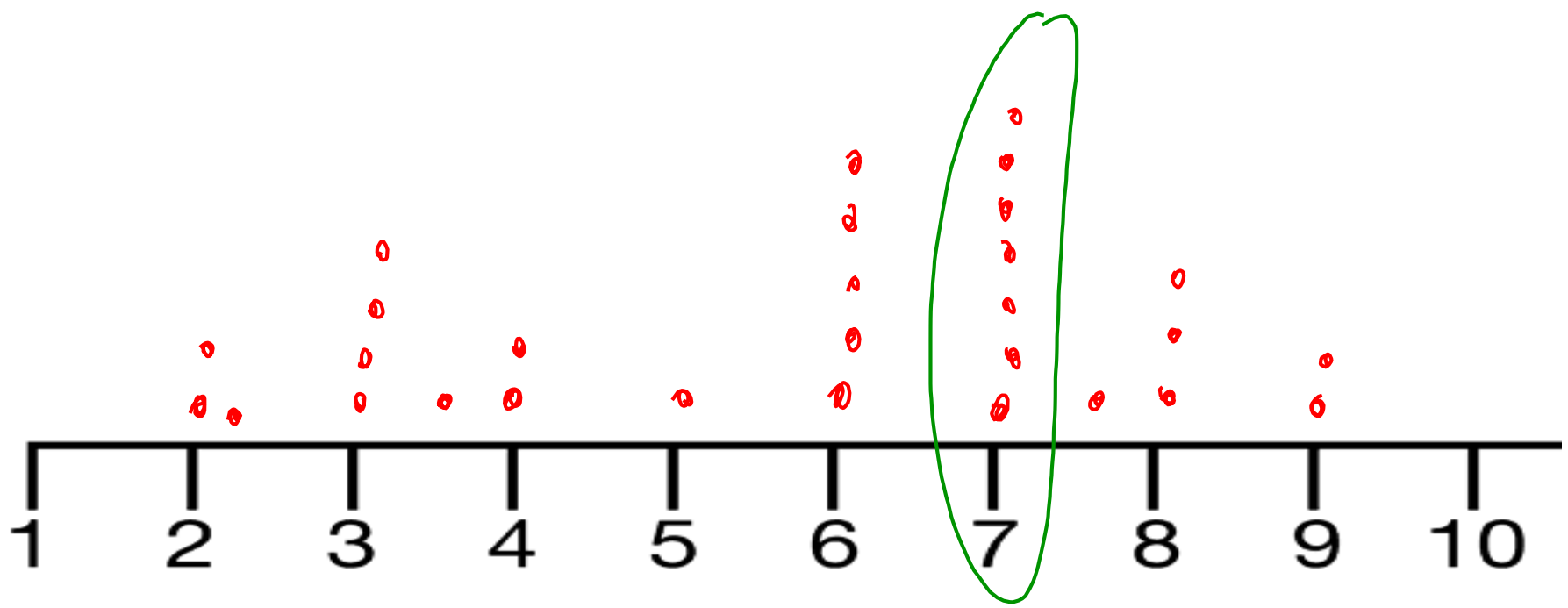# It's Not Easy Being Random

- It's surprisingly difficult to generate random values even when they're equally likely.
- Computers have become a popular way to generate random numbers.
  - Even though they often do much better than humans, computers can't generate truly random numbers either.
  - Since computers follow programs, the "random" numbers we get from computers are really pseudorandom.
  - Fortunately, pseudorandom values are good enough for most purposes.

Why not just pick numbers?

It's Not Easy Being Random

- There *are* ways to generate random numbers so that they are both equally likely and truly random.

- The best ways we know to generate data that give a fair and accurate picture of the world rely on randomness, and the ways in which we draw conclusions from those data depend on the randomness, too.
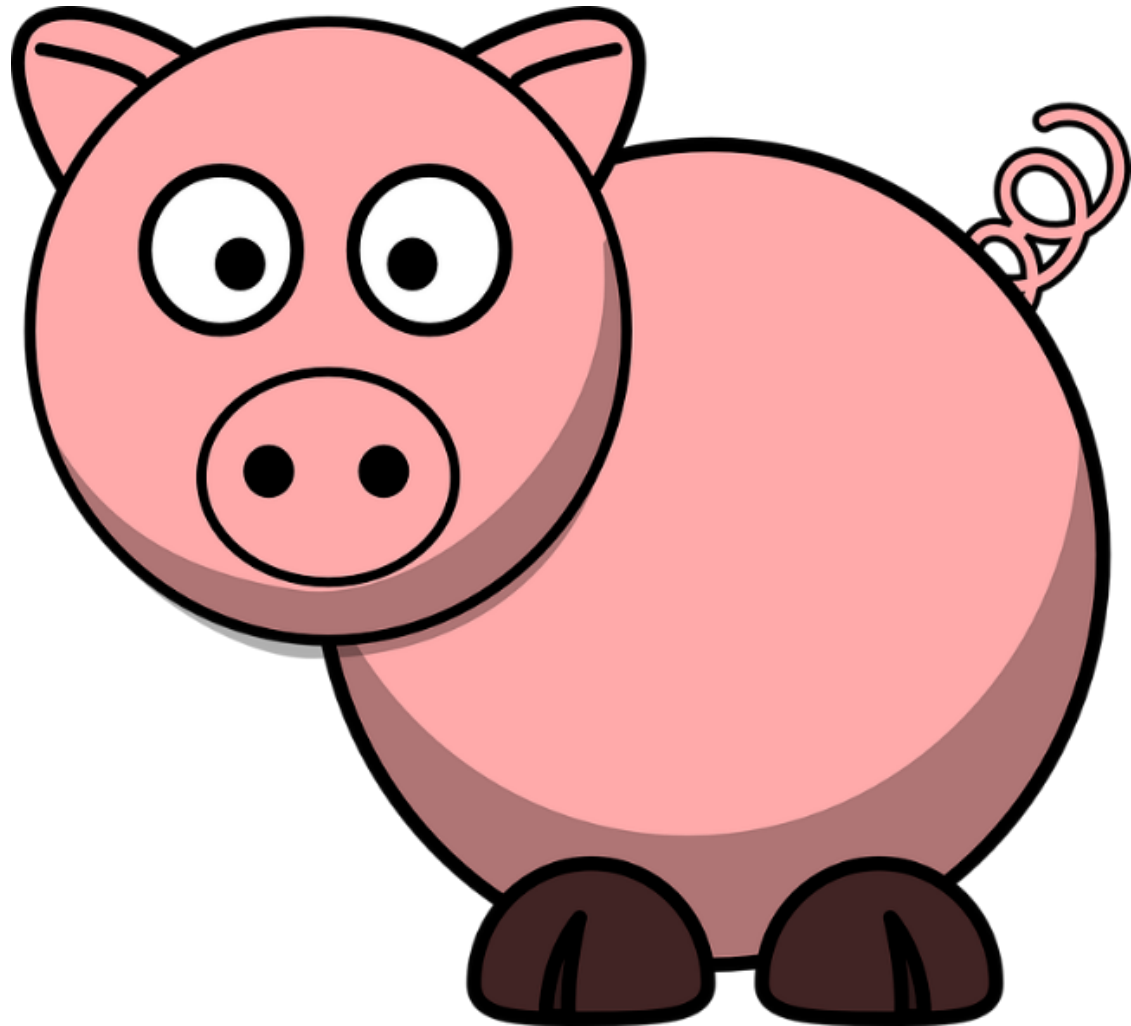
How to generate random numbers...

- Numbers in a hat
- Random Number Table
- Calculator
- Other ideas?

Practice with randomness

Pass the pigs

PLAYING THE GAME

One player must keep score. This player is known as the "swineherd."

Choose a player to go first. Play then continues to the left.

ON YOUR TURN

Roll *both* pigs together onto a smooth surface and *mentally* note the score. Points are scored according to how the pigs land. (See Scoring.)

After noting your points, you must now decide whether to stop rolling and score, or to keep rolling to try and add points to your score.

STOP ROLLING

If you choose to stop rolling, add up the points that you have rolled so far on this turn and have the swineherd mark your score on the score pad. This ends your turn. Pass the pigs to the next player.

KEEP ROLLING

You may continue to roll the pigs again and again on your turn, each time mentally keeping a running total of the points rolled. You may keep rolling until one of the following occurs to end your turn:

- You decide to stop rolling and score.

- You roll a "Pig Out" which means you score 0 points for this turn. (See Scoring.)

- You roll an "Oinker" which means you lose *all* of your points accumulated in the game so far. (See Scoring.)

At the end of your turn, have the swineherd mark your score (if any) on the score pad. Pass the pigs to the next player.

WINNING THE GAME

The first player to score a total of 100 points wins the game.

Roll	Value		Roll	Value
Sider	1 point		Double Trotter	20 points
Razorback	5 points		Double Snouter	40 points
Trotter	5 points		Double Leaning Jowler	60 points
Snouter	10 points		Mixed Combo	Combined score
Leaning Jowler	15 points		Pig Out	Back to zero for turn
Double Razorback	20 points		Oinker	Back to zero for game
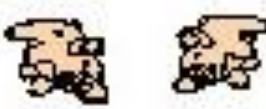
Assignment

P 265 (3-8)