AP Stats
Chap 9 Activities Name _____ Pd _____

With each of the following activities...

- record and enter the data into your calculator
- draw a sketch of the **original scatterplot** and the **original residual plot**
- comment on whether it is "straight enough"
- re-express the data until you come to a decision as to what an appropriate linear model will be
- continue this process until you arrive at what you believe to be an appropriately linear model
- write the linear model – including correct notation
- sketch the **scatterplot and the residual plot of your re-expressed data**
- extrapolate an estimate 5 data points past your last measurement

#1 – Dropping a Ball Down a Stairwell

Height (cm)	Time of Fall (sec to two places)

#2 – The Swing Time of a Pendulum

Using the weight that's already on the pendulum, record the time (in seconds, to two places) of a full swing (out and returning to the starting position) for 12 different lengths of the string. The lengths must be **increasing** as you go on. The lengths are to be measured in centimeters and should be noticeably different from each other. Meaning…measurements of 18cm, 23cm, and 30 cm – for example – aren't different *enough*.

Split up the jobs! One person will be needed to **hold the base of the pendulum**, one to **release the weight**, one to **time the swing**, and one to **record the data**. Once the jobs have been assigned, DO NOT change them! Consistency in this experiment is key!

Length (cm)	Time of Swing (sec to two places)

#3 – Rolling the Dice

Place all the dice in the large coffee cup. Roll them, all at once, into the box. Remove all the dice that show a "1." Count and record the **number of dice that remain**. Continue this process for a total of 12 rolls…unless you run out of dice before then!

Switch-up the jobs of rolling the dice, removing them, counting the remaining ones, and recording.

Roll Number	Number of Remaining Dice
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

#4 – The Disappearing M&Ms

Place all the M&Ms in the container. Pour them, all at once, onto your desk. Remove all the M&Ms that **don't** have the "M" up. (Once removed, you may eat them!) Count and record the **number of M&Ms that remain**. Continue this process for a total of 12 rolls…unless you run out of candy before then!

Switch-up the jobs of pouring the M&Ms, removing them, counting the remaining ones, recording, and – of course – eating them.

Pour Number	Number of Remaining M&Ms
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	