Name		Pd	Date
	Lab #	Understand	ing Half Life
Aim (3 points):			
Materials (3 points):			
Vocabulary (8 points):			
Half life			
Decay mode			
Radioisotope			
Nuclear Charge			

Method:

- 1. Count the m&m's \mathbb{R} in your cup. Write the number below.
- 2. Write down your starting time.
- 3. Place the *m&m*'s® in the cup. Shake the cup and dump the *m&m*'s® onto a paper towel.
- 4. Remove all *m&m*'s® which have the "m" facing up. Record this number on the data table. These m&m's represent decayed m&m's rep consumption.
- 5. Repeat step 3 until either 1 or 0 *m&m*'s® remain.
- 6. Write down your ending time.
- 7. Determine the number of seconds it took to complete the experiment.
- 8. Divide the time by the number of trials to determine the half-life of your *m&m*'s®.
- 9. Record the total elapsed time and the number of m&m's® remaining after each half-life in Table 2.
- 10. When your data Tables have been verified by the teacher, you may eat the m&m's \mathbb{R} .

Data (10 points):

starting time_____ ending time_____ # seconds elapsed _____

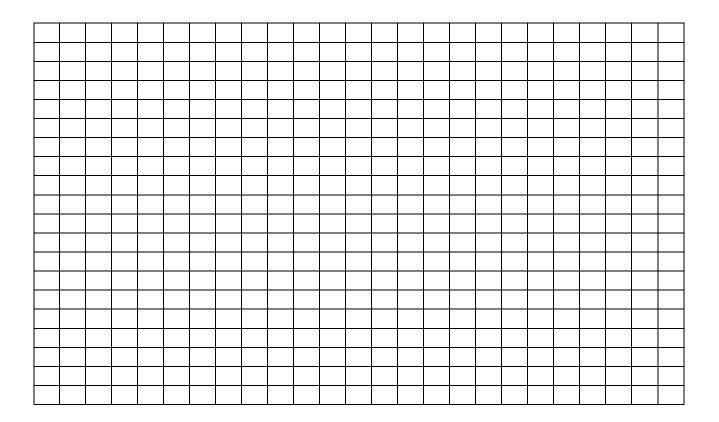
Half life = <u>total # seconds</u> = <u>______</u> seconds # of trials trials

Table 1 (data): (10 points) Number of m&m's you started with ______

Table 2 (analysis): (10 points)Half life of m&m's

Trial #	# of decayed m&m's	Half Life	Time (seconds)	Remaining <i>m&m</i> 's
0			(seconds)	mœm s
0	U	0	U	
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9		
		10		

Using Table 2 make a graph with a *best fit curve*. Put time in seconds on the X axis and number of m&m's® remaining on the Y axis. Be sure to put a title on your graph. (15 points)



Questions (3 points each):

- 1. What did you determine the half-life of your m&m's® was? _____
- 2. Approximately what percent of m&m's® was removed at each trial?_____
- 3. Is it possible to predict which of the m&m's® will be "m" side up?_____

Explain_____

- 4. Is it possible to predict approximately how many m&m's® will be "m" side up for each shake?_____ Explain._____
- 5. How would you describe the shape of your graph?_____
- 6. Suppose you started with 1000 m&m's®, about how many m&m's® would be removed in the first shake?_____
- 7. How would the shape of the graph from question #6 compare to the one above?
- 8. Explain why the graph of the 1000 m&m's is similar or different.
- 9. Describe how this lab simulates the half life of an element.

Regents Questions (next page) (14 points).