



RADIOACTIVE DECAY: A SWEET SIMULATION OF A HALF-LIFE



DATA COLLECTION:

In this simulation, you will use small pieces of candy that are marked on one side. They will be your “nuclei.” You also need a paper towel on which to place your candies.

PROCEDURE:

1. Count your nuclei (candy). Record that number in the upper left box of data table #1 under the heading “Number of Radioactive Nuclei”.
2. In the column marked “Prediction for next toss” write the number of radioactive nuclei you think you will have present after your toss (Radioactive nuclei will be those with the marked side facing up).
3. Place your “nuclei” in a paper cup, cover, and shake up. Pour the “nuclei” onto your paper towel. Separate the nuclei into two piles, one with the marked side up and the other with the marked side down.
4. Count the number of nuclei in each pile. On your data table, record the number of “radioactive nuclei” candies with the marked side up.
5. Predict how many radioactive “nuclei” you will have after the next toss and record your prediction.
6. Return only the radioactive nuclei to your paper cup. (You decide what to do with the decayed nuclei – those with the marked side down).
7. Continue this process until there are no radioactive nuclei left. Add more rows to your data table if needed.
8. Record all of your data in **Table #1**.
9. After you have recorded all of your data, add it to the class data table.
10. Complete data **Table #2** by *recording the total class data*.



DATA TABLE #1 (YOUR DATA)

TOSS	NUMBER OF RADIOACTIVE "NUCLEI"	PREDICTION FOR NEXT TOSS
BEFORE FIRST TOSS		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

DATA TABLE #2 (POOLED CLASS DATA)

TOSS	NUMBER OF RADIOACTIVE "NUCLEI"
BEFORE FIRST TOSS	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

GRAPHING YOUR RESULTS:

Using the *Pooled Class Data (Data Table #2)*, prepare a graph on a Page #3 by plotting the number of radioactive "nuclei" on the y-axis and the number of tosses (which we call half lives) on the x-axis.

Names: _____

Period: _____



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GRAPHING RESULTS:

1. Label both axes.
2. Scale the axes *so that the data utilizes most of the area of the graph.*
3. Plot the ***class*** data points.
4. Connect the data points with a smooth line.

