

Name _____

Half Life Lab

Half life is the time it takes for half of a radioactive element to decay into some form of radiation. It is not always a definite thing and can be somewhat random. In this lab you will simulate the decay of a radioactive element, and measure the amount of radiation being given off. To simulate this you will use pennies. If the penny comes up heads, then the material did **not** decay. If it comes up tails then it decayed into radiation. Each time you “flip” the pennies you will simulate 1 half life (each penny has a 50% chance of decaying).

1. Obtain _____ pennies and a cup (you must have at least 100)
2. Write this number as **number of heads for trial 0**
3. Put the pennies in a cup shake it up and dump the pennies on the table.
4. Count and record the number of heads and tails.
5. **Place the tails off to the side** and put only the heads back into the cup.
6. Repeat steps 2-4 for a total of 5 trials or until you run out of pennies.

Trial	0	1	2	3	4	5
Number of heads						
Number of tails	X					

Making graphs of your data

1. Report all data to me and I will create a class graph.
2. Open up Google sheets on a chromebook
3. You will be making a graph of heads (mass of isotope) vs. half lives and tails (radiation being given off) vs. half lives
4. Type the trial (0-5) in column A. Next to each trial type your number of heads in column B (start with your highest number). In column D type your number of tails (start with your experimental data). In column C type the trial (1-5) that corresponds to each number of tails.
5. Highlight the number of heads column and trials, and click on the Insert Chart button on your toolbar (it is to the right on the toolbar)
6. Change Chart Type to a line chart.
7. Click on the 3 dots to the top of the chart. Click Move to own sheet
8. Right click on your chart, click on Chart Axes and Titles
9. Title your graph the X- axis will be Number of Half Lives, the Y-axis will be Mass of Isotope.
10. Right Click on the chart, click on Gridlines. Click on Horizontal the return and click on Vertical after you have completed horizontal. Change minor gridlines count to 10 to each axis.

11. To get back to your table click on sheet 1 tab (bottom right) to return to your chart click on chart 1.
12. Repeat with the tails column, but add it as chart 2 and your Y-axis will be Radiation Given off.
13. Attach the graph to the assignment on google classroom and answer the questions on the assignment.