**Modelling Rates of Radioactive Decay**

Name: Date:

**What to Do:**

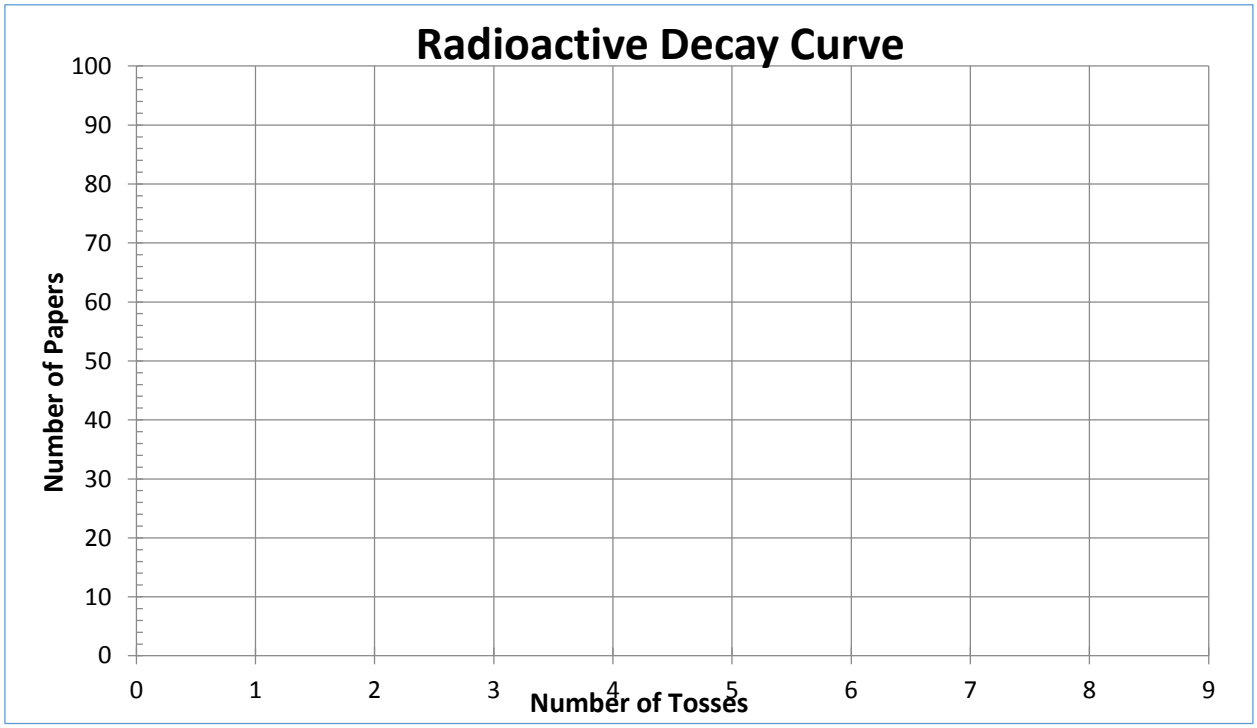
1. Shake all the papers in a container and then toss (dump) them out onto your desk. Any paper that lands with the coloured side facing up, remove from the pile and put them off to the side. Count the papers remaining (white side up) and the coloured papers taken out and record in the table below.

2. The remaining papers (white side up) are put back into the container and shaken again. Dump them out again, and again remove paper that lands coloured side up, adding these papers to the coloured side up paper you have already taken out.

3. Record all of your data until you no longer have any papers left to shake.

| Number of Tosses Completed | Number of Papers Remaining | Total Number of Papers Removed Since the Start |
|---|---|---|
| 0 | 100 | 0 |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| Last Toss (record the number) | 0 | 100 |

1. Use your data and the graph you made on the computer to sketch a radioactive decay curve. Use two different colours to show the curve for papers removed and another for papers remaining.




2. Can you find a pattern of the approximate percentage of papers that were removed after each toss?

3. Could you use your graph to estimate how many papers would be left after four tosses if you had already done three but not the fourth? Explain.

4. Does your data suggest you could predict exactly how many papers were left after four if you had already done three tosses but not the fourth?

5. There is no such thing as "half a toss" of the papers. However, does your data suggest that you could estimate the number of papers remaining after 2 ½ tosses?