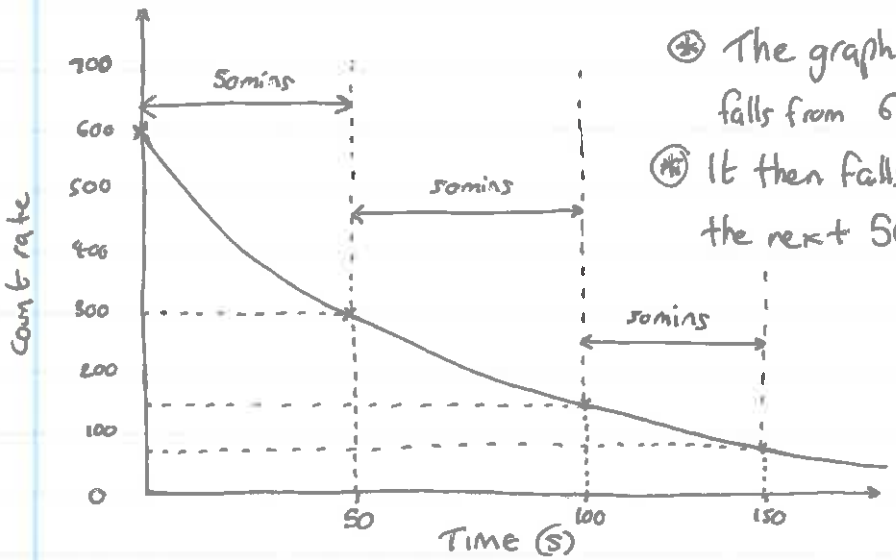
Half Life

- Radioactive isotopes decay at a fixed rate that is measured as a half life. This is the amount of time it takes for a sample to reduce its mass by half as it decays into other elements.

- Every radioactive isotope has a specific half-life. The more radioactive an isotope, the shorter it's half life.



* The graph shows that the count rate falls from 600cpm to 300cpm in 50mins.
* It then falls from 300cpm to 150cpm in the next 50mins.

* Using the graph you can see that the average time taken for the count rate to fall by half (also the no. of parent atoms) is 50mins - this is it's half life.

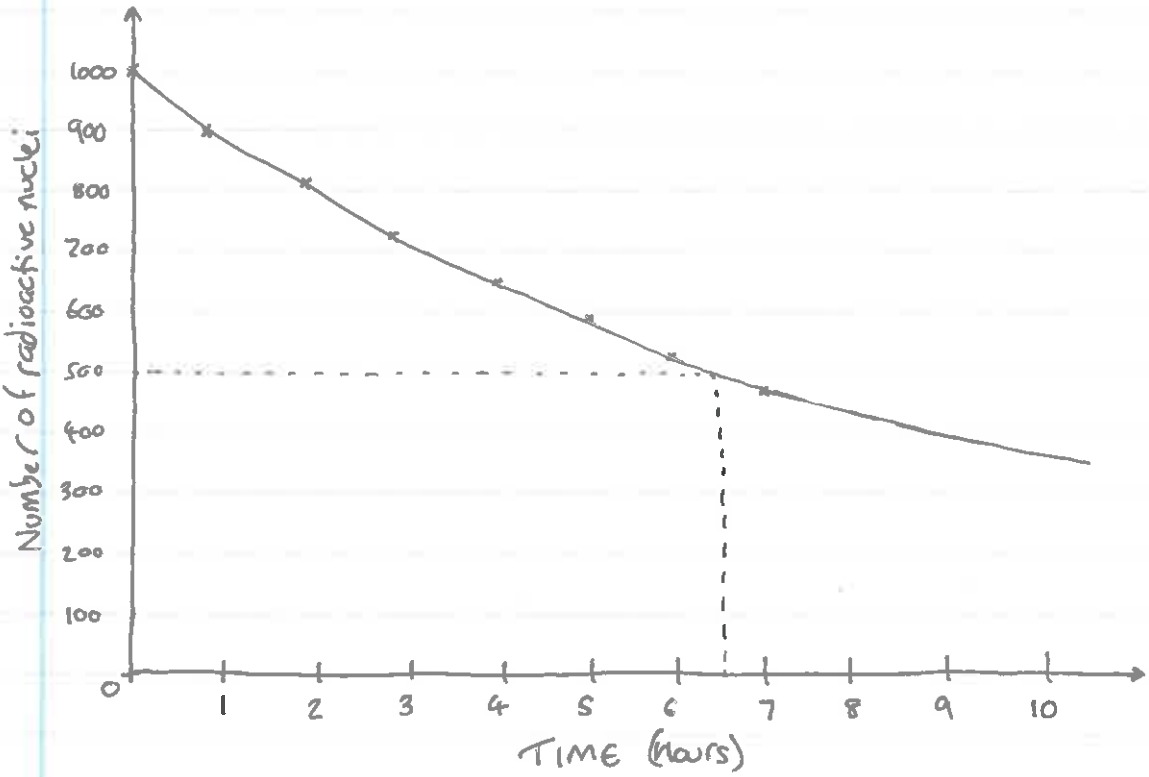
* Remember that we cannot predict when an individual atom will suddenly decay. But we can predict how many will decay in a certain amount of time.

Imagine we started with 1000 atoms and 10% decay every hour:

10% of 1000 = 100 atoms decay in one hour. This leaves 900.

10% of 900 = 90 atoms decay in one hour. This leaves 810.

TIME	1hr	2 hr	3hr	4hr	5hr	6hr	7hr
No of Atoms	900	810	729	656	590	530	477



Using this graph you can work out the half-life!

Half-life = 6·5 hours!