

Half Life notes

5/10/19

Activity:

- Given a strip of paper (11" long)
- Given graph paper.

To Do:

- Every beat you hear (every 30 seconds) tear your paper in $\frac{1}{2}$. - measure the remaining length of paper. $11" \div 2$

Fill in chart:

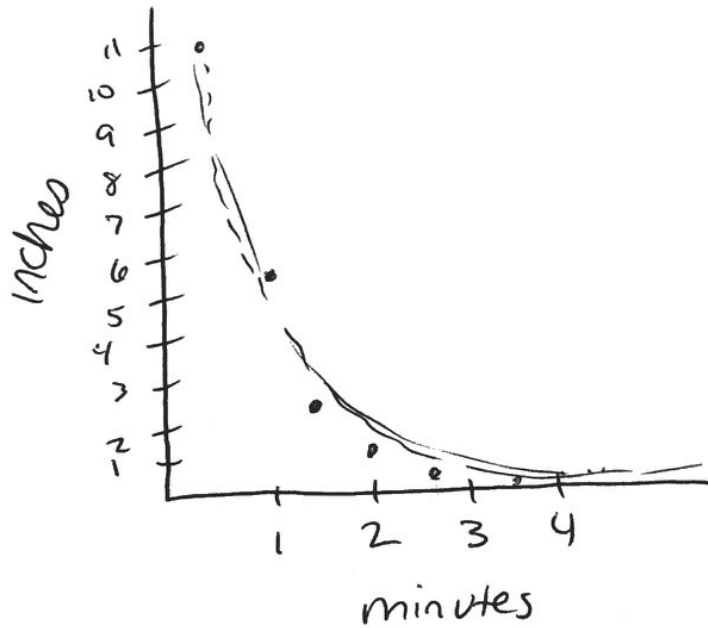
# of HL	time	(sample) material
0	0	11"
1	30s	5.5"
2	60s	2.75"
3	90s	1.375"
4	120s	0.6875"
5	150s	0.34375"
6	180s	0.17187"

- The amount of change is bigger in the beginning.

- Change gets smaller and smaller over time.

Exponential decay.

- We would never run out of paper - there will always be another $\frac{1}{2}$ no matter how small.



Half life practice problems

- ① A 300g sample of substance X has a half life of 8 years.
How much is left after 40 years?

# of HL	time	material
0	0	300
1	8	150
2	16	75
3	24	37.5
4	32	18.75
5	40	9.375

← Answer

- ② 800g of substance B degrades into 50g in 120s. How long is the half life of substance B?

# of HL	time	material
0	0	800g
1	30	400g
2	60	200g
3	90	100g
4	120s	50g

30 sec