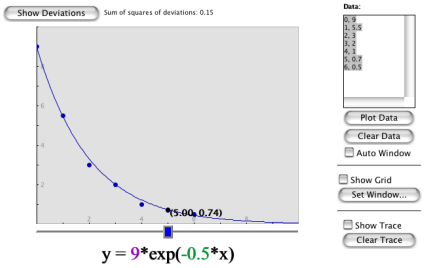
Activity: Data Flyer



In this activity you are going to build your insight about fitting curves to data.

website: http://www.shodor.org/interactivate/activities/DataFlyer/

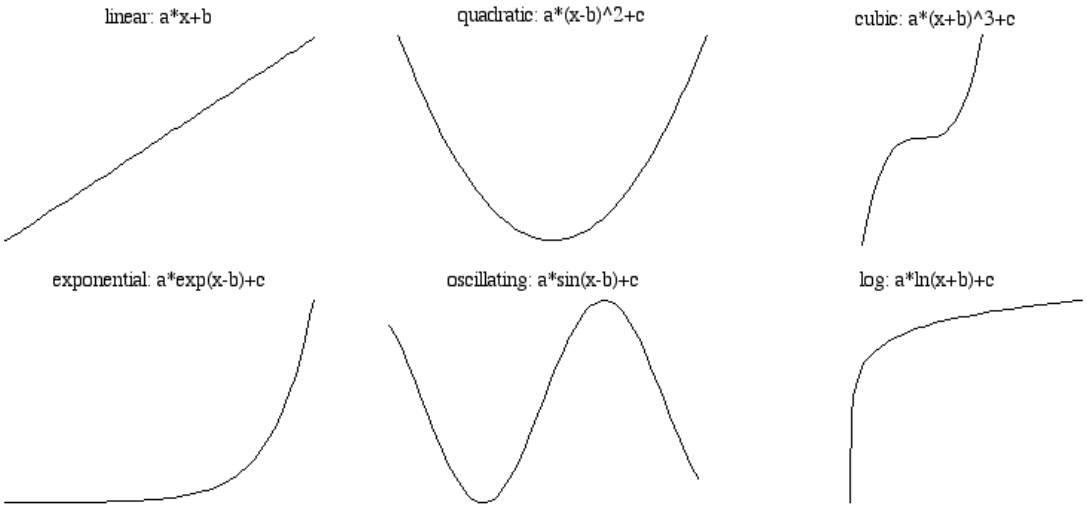
Start the fly data activity. You should see the graph space along a place to enter data and a function.

Activity 1 – Becoming Familiar with Data Flyer: Given the data below on the decay of a radioactive isotope, plot the data in data flyer; be sure to change the window settings appropriately. Look at the data and decide which function would behave similar to these data. Experiment with the slider bars to fit your chosen shape to the data.

Elapsed Time (hr)	Amount Present (g)
0	9
1	5.5
2	3
3	2
4	1
5	0.7
6	0.5

Hints to get started:

- To enter data, remember to put spaces or commas between data values, and hit return after each pair.
- To enter a function, remember that every number entered will be a slider bar… AND you will get a better fit faster if you think a little before blindly choosing the coefficients in a function. If the function is shifted somehow, set your initial coefficients appropriately,
- Use whole numbers first to get a rough alignment. If the slider bar doesn't go far enough, there are several ways to change the scale, the easiest being to "change function" and "set function" – adding more decimal places to the numbers if a finer granularity is needed.
- "Standard" shapes you might consider:



Questions:

1. What shape did you start with?
2. How well did your final function fit?
3. What was the sum of the squared deviations? Were there outliers that might affect the sum?
4. What other shapes might be worth trying?
5. What does your function predict for the amount of isotope present after 1.5 hours? 9 hours?

Activity 2: Here is some data on tides, where the distance is measured from mean tide line:

time (hrs)	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
tide (ft)	2.4	0	-2.2	-2.7	0.2	3.2	2.9	0.3	-2.4	-3.1	-0.8	2.9	3.1	0.6	-2.2	-3.2	-0.9

Questions:

6. What shape did you start with?
7. How well did your final function fit?
8. What was the sum of the squared deviations? Were there outliers that might affect the sum?
9. What other shapes might be worth trying?
10. What does your function predict for the tide after 1.5 hours? 50 hours?