Candy Atoms

Be sure to keep the candy on napkins or in cups if you wish to act as the disposal for decayed candy at the end. No lab table candy can be eaten!

Part 1

Can you find the average atomic mass of your Skittles?

Uranium is an element that has many radioactive isotopes. Your Skittles package is a sample of some of those isotopes and can be used to find the average atomic mass of your sample. You can tell the atomic mass by the color.   Please use the chart below to find the average atomic mass of your bag.

Color	amount	Mass of isotope	Total Mass
red		238	
yellow		235	
orange		232	
green		234	
purple		233	

Please show all of your calculations for the average atomic mass of your sample here.

Is your mass the same as other students? Gather at least five other students data and compare the samples, to the average of all six distributions. Show those calculations here.

How could you increase the reliability of your data?

Create a histogram of your data to show your distribution of isotopes.

Part 2

Create the curve for radioactive decay using data you gathered from the Skittles.

Atoms are called radioactive because they decay and result in a different atomic mass or element. You want to see the curve of the rate of decay. Combined your skittle values with at least one other person, each of you can retain "your" atoms yet combine your data results as when the atoms decay you must dispose of them in some fashion.

Count your skittles and record that value as your initial at time .001. Note time 0 is entered as .001 as for several mathematical models a 0 point cannot be used. Put your skittles in the cup and shake them. Empty you cup carefully onto a napkin. Those skittles with letters up have decayed. Remove them and record the "good" skittles into the data table below. Continue until all skittles have decayed. Or you reach 1 several times.

Half Life	Your Live Skittles	Partner's Live Skittles	Total Live Skittles
.001			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Describe your results. Try to fit a function to your line.

Graph your data.
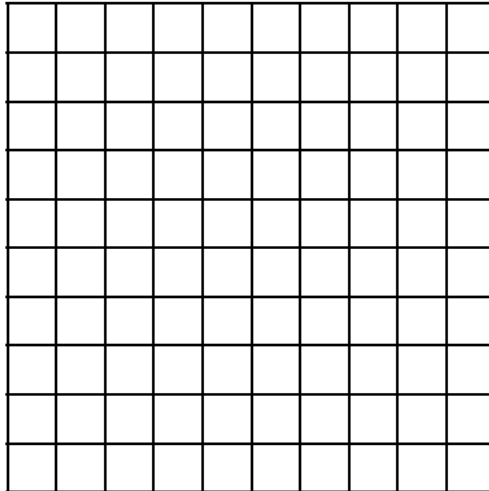
If each tumble is 100 years, what is the half-life of your sample?

What does this mean?