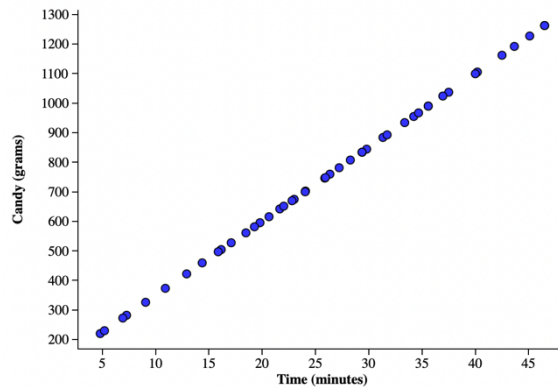# Trick or Treat

What is the relationship between the amount of time spent trick-or-treating and the amount of candy a person gets? Here are data from students from last year.

1. Input the values into your calculator with time in L_1 and candy in L_2.

(STAT/EDIT/Edit)

2. Make a scatterplot

(2nd / Y = / Xlist: L_1, Ylist: L_2 / Zoom / 9: ZoomStat).

Time (minutes)	Candy (grams)	Time (minutes)	Candy (grams)
4.8	220.11	24.03	699.88
7.27	282.06	18.47	560.91
10.91	373.21	12.91	422.06
16.15	504.31	9.06	325.95
19.79	595.27	6.92	272.63
21.65	641.90	5.2	229.80
22.02	651.32	15.87	496.96
24.06	702.37	17.09	527.35
26.35	759.61	36.95	1023.85
27.22	781.22	34.67	966.85
31.33	883.72	19.27	581.44
35.58	990.06	20.64	615.53
40.19	1105.24	28.27	807.31
43.66	1191.81	14.37	459.35
46.5	1262.54	23	674.44
46.5	1262.34	25.87	746.17
45.1	1227.10	35.58	989.71
42.5	1161.92	29.37	833.69
40	1099.32	31.72	892.55
37.5	1036.76	33.37	933.95
34.22	954.70	29.37	833.88
29.8	844.12	25.93	747.85
		22.8	669.64

3. Describe the relationship.

There is a strong, positive, linear relationship between time & candy with no obvious outliers.

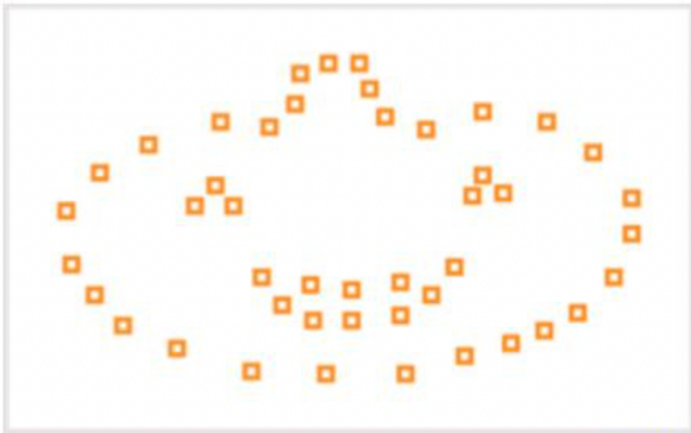4. Find the equation of the LSRL. (STAT / CALC / 8:LinReg(a+bx))

$$\widehat{candy} = 100.019 + 24.997(time)$$

5. Find and interpret the residual for the student who spent 23 minutes trick-or-treating.

$$residual = y - \hat{y} = 674.44 - 674.95 = -0.51$$

The actual amount of candy is 0.51 grams lower than predicted for x = 23 minutes.

6. Create a residual plot. (2nd / Y = / Xlist: L_1, Ylist: RESID / Zoom / 9: ZoomStat)

7. Is a linear model appropriate for this data? Use your residual plot to justify.

No, the residual plot shows a clear pattern!