How Normal Are You?

In this project you will determine how your personality test results compare to those of your classmates. You will use basic statistical methods that are used extensively in psychological research.

1. Record your raw scores here:
    a. Openness to Experience (O):
    b. Conscientiousness (C):
    c. Extroversion (E):
    d. Agreeableness (A):
    e. Neuroticism (N):

2. Record the raw scores from your entire class here:

O:	C:	E:	A:	N:

3. Make a frequency distribution of the results for each score category:
    a. Openness to Experience:

What shape is the distribution?_____

Conscientiousness:

What shape is the distribution?_____

Extroversion:

What shape is the distribution?_____

Agreeableness:

What shape is the distribution?_____

Neuroticism:

What shape is the distribution?_____

4. Now you need to find the mean of each score category. To find the mean of a distribution, sum all the values, then divide by the number of values. Excel can do this for you, which saves time and makes errors less likely.
   a. O mean:
   b. C mean:
   c. E mean:
   d. A mean:
   e. N mean:

5. Standard Deviation is a number that we can use to characterize how spread out a distribution is. A distribution with a large standard deviation is more spread out than a distribution with a low standard deviation. The formula to find standard deviation is very complicated, so you should use Excel to determine the standard deviation of each score category's distribution.
   a. O standard deviation:
   b. C standard deviation:
   c. E standard deviation:
   d. A standard deviation:
   e. N standard deviation:

6. Normal scores, also called "Z-scores," tell you how many standard deviations your own score is from the mean of everybody's score. They are useful because once you know them, you can find what percentile you are in. To find your Z-score for each category, take your raw score, subtract the mean, then divide the result by the standard deviation.
   a. O Z-score:
   b. C Z-score:
   c. E Z-score:
   d. A Z-score:
   e. N Z-score:

7. On the next page you will find a conversion table that you can use to look up your Z-scores from part (6) and find what percentile you are in for each score category. Record your percentiles.
   a. Openness to Experience percentile:
   b. Conscientiousness percentile:
   c. Extroversion percentile:
   d. Agreeableness percentile:
   e. Neuroticism percentile:

Percentiles tell you what percent of participants scored lower than you did.

What percent of your classmates are less open to experience than you are?
What percent are more open to experience?

What percent of your classmates are less conscientious than you?
What percent are more conscientious?

What percent of your classmates are less extroverted than you?
What percent are more extroverted?

What percent of your classmates are less agreeable than you?
What percent are more agreeable?

What percent of your classmates are less neurotic than you?
What percent are more neurotic?

8. What do these results tell you about yourself, and about how you compare to the other students in your class?

Z-score and Percentile
Conversion Table

%	z	%	z	%	z	%	z
0	-3						
1	-2.33	26	-0.64	51	0.03	76	0.71
2	-2.05	27	-0.61	52	0.05	77	0.74
3	-1.88	28	-0.58	53	0.08	78	0.77
4	-1.75	29	-0.55	54	0.1	79	0.81
5	-1.65	30	-0.52	55	0.13	80	0.84
6	-1.56	31	-0.5	56	0.15	81	0.88
7	-1.48	32	-0.47	57	0.18	82	0.92
8	-1.41	33	-0.44	58	0.2	83	0.95
9	-1.34	34	-0.41	59	0.23	84	0.99
10	-1.28	35	-0.39	60	0.25	85	1.04
11	-1.23	36	-0.36	61	0.28	86	1.08
12	-1.18	37	-0.33	62	0.31	87	1.13
13	-1.13	38	-0.31	63	0.33	88	1.18
14	-1.08	39	-0.28	64	0.36	89	1.23
15	-1.04	40	-0.25	65	0.39	90	1.28
16	-0.99	41	-0.23	66	0.41	91	1.34
17	-0.95	42	-0.2	67	0.44	92	1.41
18	-0.92	43	-0.18	68	0.47	93	1.48
19	-0.88	44	-0.15	69	0.5	94	1.56
20	-0.84	45	-0.13	70	0.52	95	1.65
21	-0.81	46	-0.1	71	0.55	96	1.75
22	-0.77	47	-0.08	72	0.58	97	1.88
23	-0.74	48	-0.05	73	0.61	98	2.05
24	-0.71	49	-0.03	74	0.64	99	2.33
25	-0.67	50	0	75	0.67	100	3.00+

9. In a true normal distribution, about 40% of the data values are within one standard deviation of the mean.

Choose one of the five score categories to analyze. You will determine how close it is to being a true normal distribution, and whether it is symmetric.

Category you are using:_____

What range of scores is within one standard deviation of the mean?

How many of your class' scores are in that range?

What percent is that?

Is it close to 40%?

How many scores are more than one standard deviation below the mean?

What percent is that?

How many scores are more than one standard deviation above the mean?

What percent is that?

Is the distribution symmetric?