

Normal Models Investigation

A Normal model can be a useful tool for interpreting what data have to say - sometimes. Your task here is to check the usefulness of such a model for data you collect or create. There are three phases in completing this task:

You may work alone or with a partner. If you work with a partner, please write both names on your paper.

1. **Collect data:** You need a data set with 30 – 50 values. Find something you are interested in. Use existing data, or create some yourself. Need an idea? Look below.

Do not spend more than 10 minutes thinking about what data to use...you will run out of time!

- Put 10 pennies in a glass, put your hand over the top, shake well, then dump them out on a table and count the number that came up heads. There is a simulation on my website you can use. (Do it 30 – 50 times)
- Roll two dice and record the total. There is a simulation on my website you can use. (Do it 30 – 50 times)
- Deal cards from a well-shuffled deck one at a time. Count the number of cards that are face cards out of 10 (or a different combination). There is a simulation on my website you can use. (Do it 30 – 50 times)
- Use some data from another class – a science experiment, perhaps.
- Look something up in an almanac. For example, there are lots of tables of data about states - crime rates, population density, median income, etc.
- Use some sports statistics – number of wins for baseball teams, scores in a golf tournament, weights of players on a football team, etc.
- Find something on the Internet – www.census.gov for example.

2. **Describe the data:** Write a brief but thorough description of your data. Start with the W's, and remember to include visual, numerical, and verbal descriptions. You can type it up or write it on paper.
3. **Check the Normal model:** Use the mean and standard deviation of your data to create a Normal model (it maybe easier to do this on paper and not the computer). Compare this model to the distribution that you found and explain why you think the model is or is not useful.