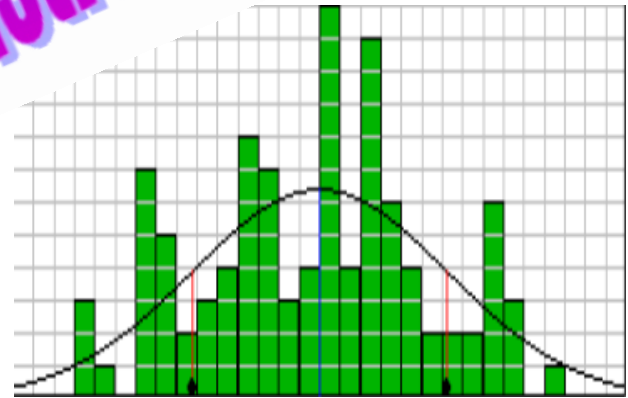
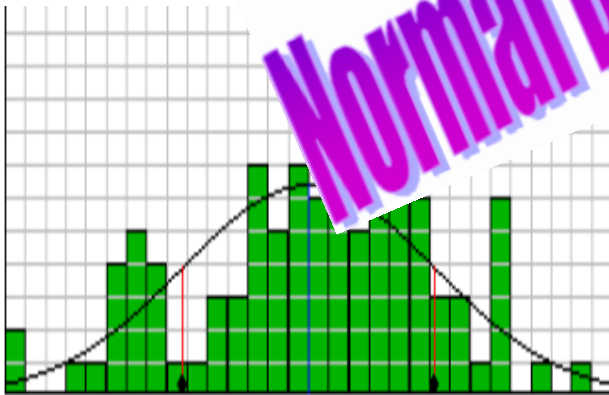
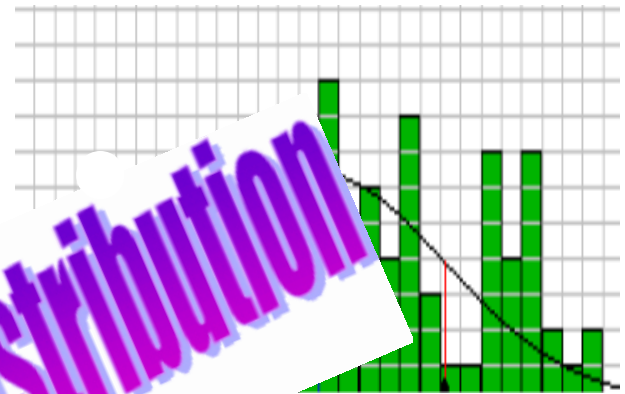
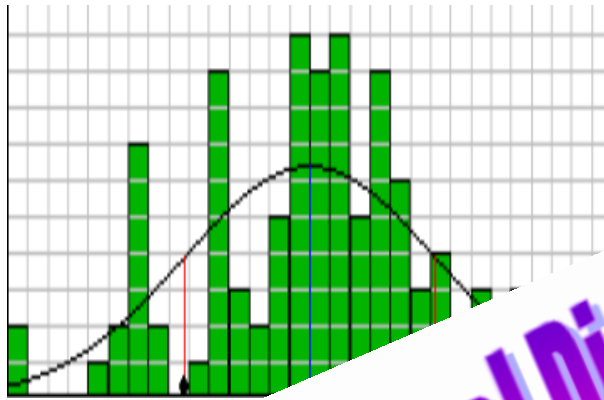
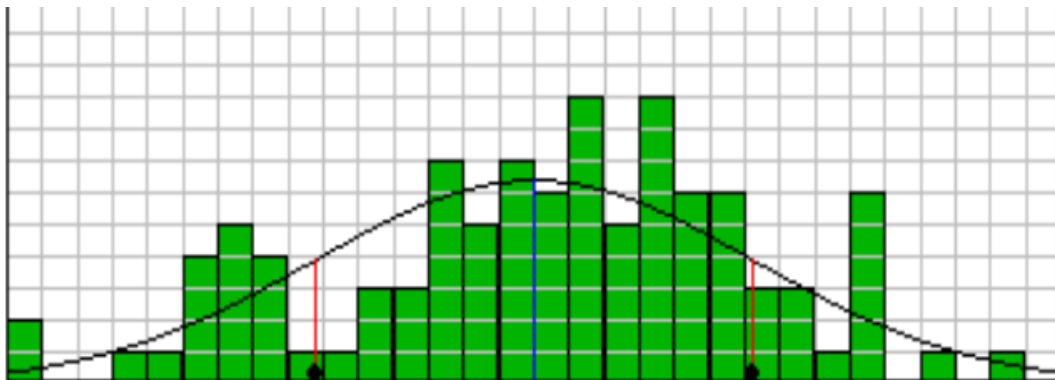


Normal Distribution

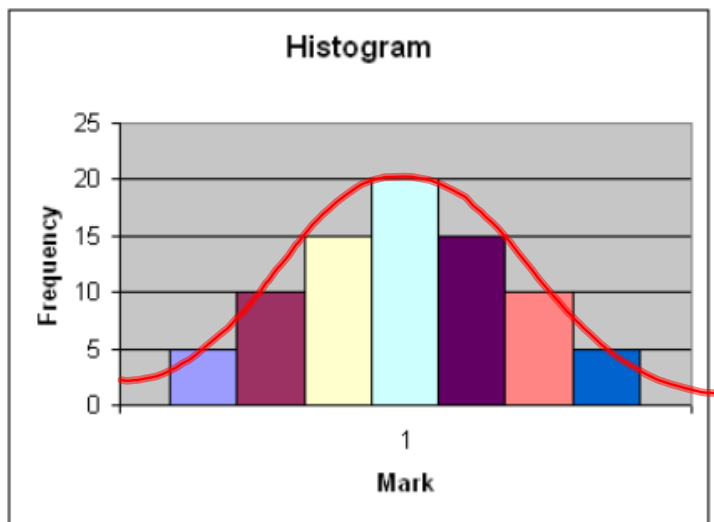


- ✓ Most of the Data is clustered around the middle
- ✓ The measures of central tendency are close together
- ✓ There are few outliers
- ✓ The histogram is symmetrical around the middle
- ✓ The shape appears to be bell shaped



Look at this histogram... notice the Bell Shaped Curve.

Let's draw the curve!



✚ This is called the "Normal Curve" or "Bell Curve."

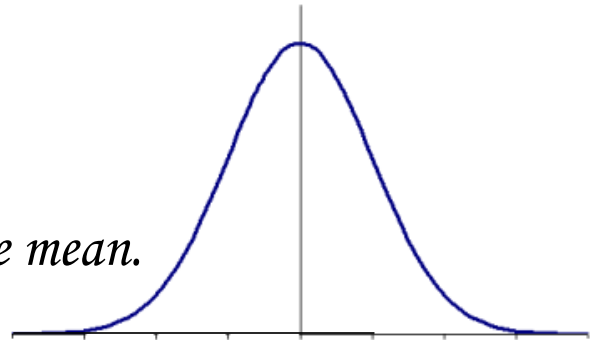
Characteristics of a Normal Curve

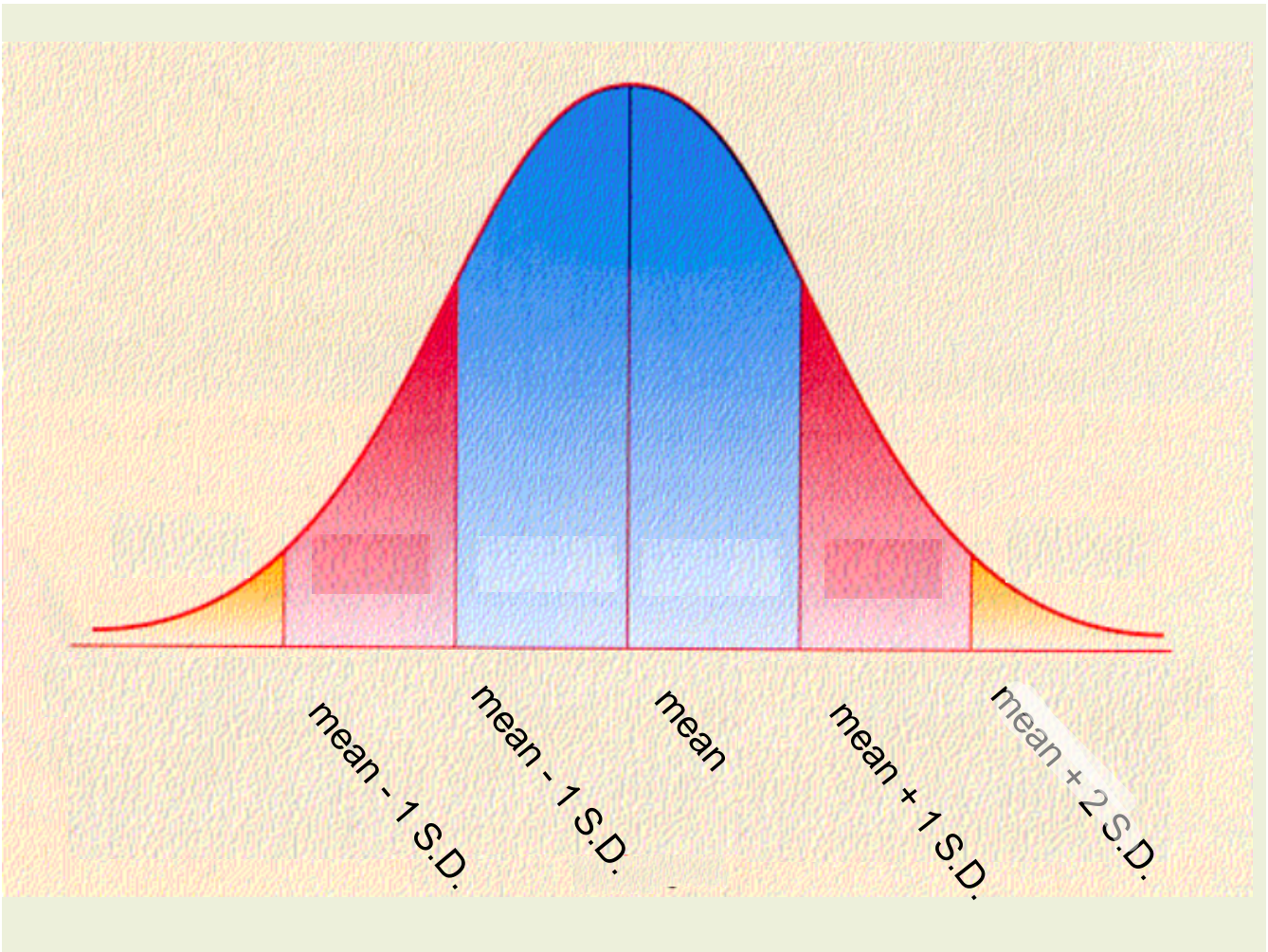
1. *It is bell shaped.*

2. *The center of distribution is the mean.*

3. *The spread of the bell is determined by the standard deviation.*

4. *The area under the curve is equal to one.*

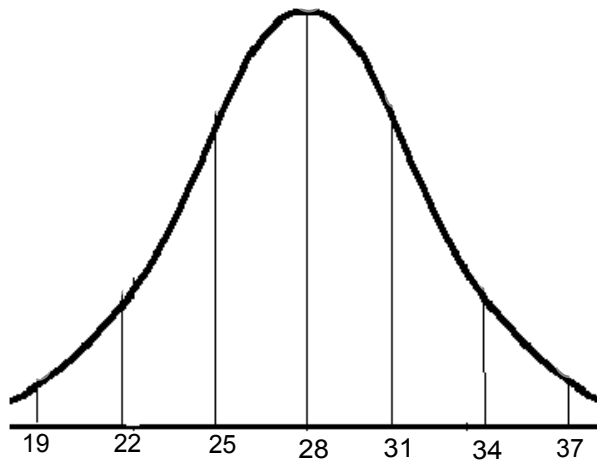




Draw the Normal Curve

Mean: 28

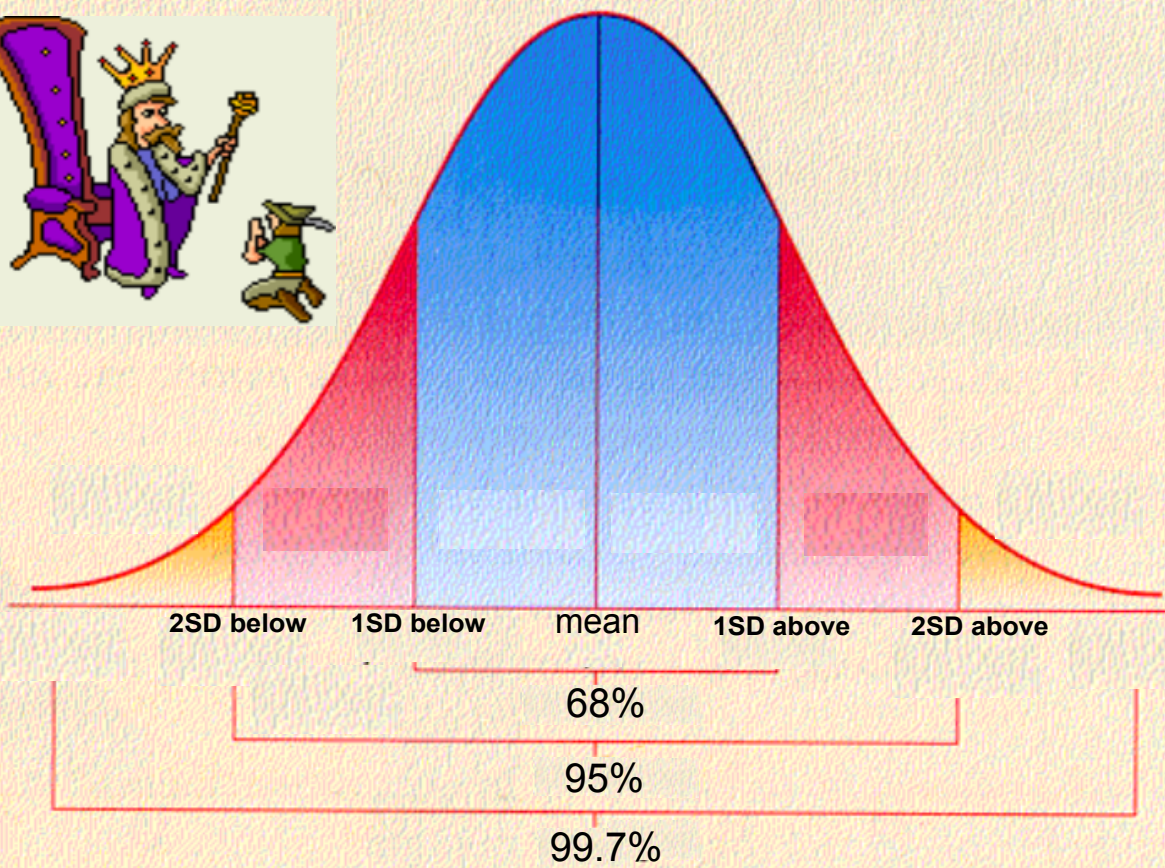
Standard Deviation 3



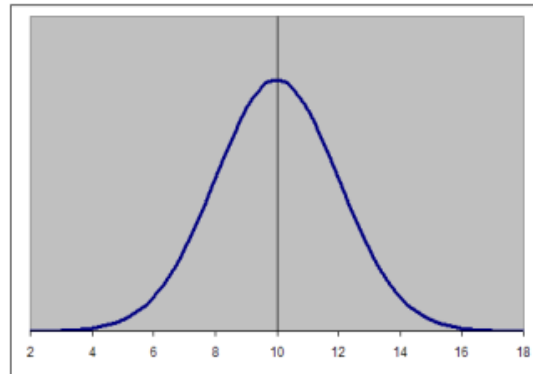
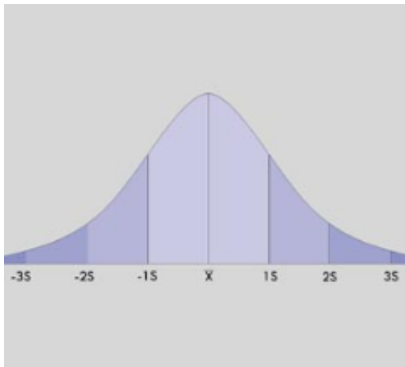


Empirical Rule of Outliers

- 1) About 68% of the data are within plus or minus one standard deviation of the mean.
- 2) About 95% of the data are within plus or minus two standard deviations of the mean.
- 3) About 99.7% of the data are within plus or minus three standard deviations of the mean.
- 4) Outliers fall outside the third standard deviation mark.



Uses of the Normal Curve



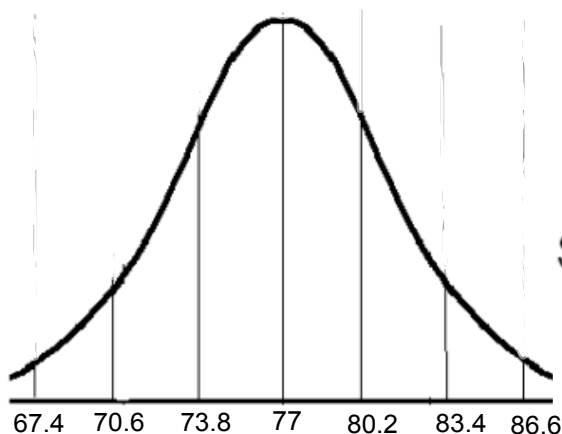
The area under the curve is used to make predictions, calculate probability, and calculate percentile.

Example #1

The incubation period for the eggs of certain turtles was studied. It was determined that the mean was 77 days with a standard deviation of 2 days. This data is normally distributed.

Within What range of days would 68% of the eggs hatch?

What do we know?



Mean: 77

Standard Deviation: 3.2

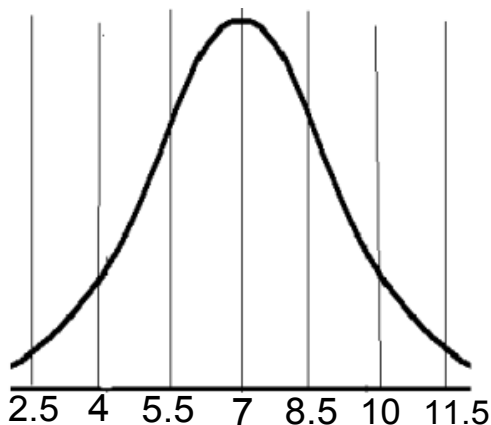
Label the Curve

68% of the eggs would hatch between 73.8 days and 80.2 days

Example #2... Try it yourself!

Students from a certain University were studied to see how many hours they slept each night. The mean was 7 hours with a standard deviation of 1.5 hours. The data is normally distributed.

What do we know?



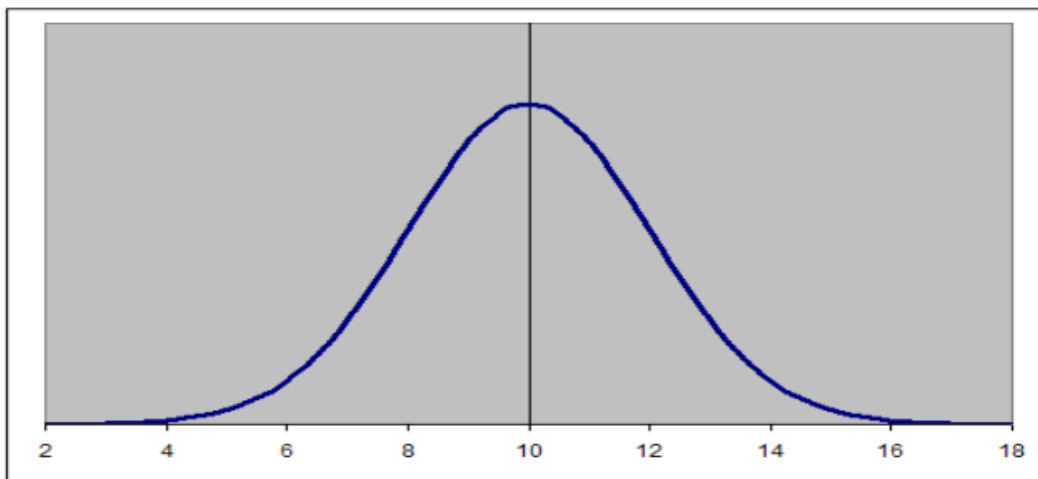
Mean: 7

Standard Deviation: 1.5

Label the Curve

95% of the students sleep between 4
and 10 every night.

Example 3



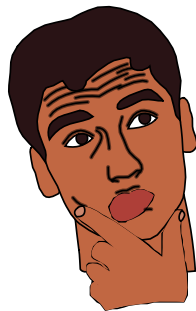
- 1) What is the mean? 10
- 2) What is the standard deviation? 2
- 3) Within what range does 68% of the data fall? 8 - 12
- 4) Give an example of an outlier. 3

Example 4

Use the following data to create a Normal Curve:

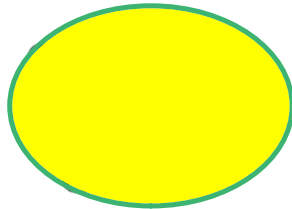
21, 25, 26, 34, 28, 30, 31, 29

What 2 things do I need?



21, 25, 26, 34, 28, 30, 31, 29

Mean:



Standard Deviation

<u>Data Value</u>	<u>Deviation</u>	<u>Squared Deviation</u>
21		
25		
26		
34		
28		
30		
31		
29		

