

## BIG IDEAS

*For Your Notebook*

### Big Idea 1

TEKS 2A.1.B

### Finding Measures of Central Tendency and Dispersion

The table shows common measures of central tendency and dispersion for a data set. It also shows how these measures are affected when a constant is added to each data value or when each data value is multiplied by a constant.

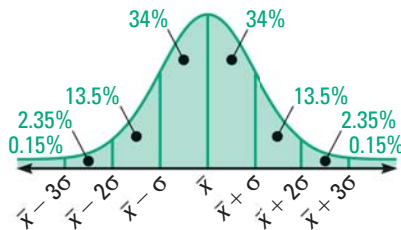
	Data: 1, 4, 4, 5, 8, 9, 9, 15	Add 5 to each value in data set	Multiply each value in data set by 3
<b>Mean</b>	6.875	$6.875 + 5 = 11.875$	$3(6.875) = 20.625$
<b>Median</b>	6.5	$6.5 + 5 = 11.5$	$3(6.5) = 19.5$
<b>Mode</b>	4 and 9	$4 + 5 = 9$ and $9 + 5 = 14$	$3(4) = 12$ and $3(9) = 27$
<b>Range</b>	$15 - 1 = 14$	14	$3(14) = 42$
<b>Standard deviation</b>	4.04	4.04	$3(4.04) = 12.12$

### Big Idea 2

TEKS a.1

### Using Normal Distributions

A normal distribution is modeled by a symmetric, bell-shaped curve. The area under a normal curve is distributed as shown below. A  $z$ -score is the number of standard deviations a data value lies above or below the mean. You can use  $z$ -scores and the standard normal table on page 759 to find probabilities related to any normal distribution.



$$z\text{-score} = \frac{x - \bar{x}}{\sigma}$$

### Big Idea 3

TEKS a.5

### Working with Samples

You can use several different methods to choose a sample from a population. Random sampling is most likely to produce an unbiased sample.

<b>Self-selected sample</b>	Members volunteer.	Often biased
<b>Systematic sample</b>	A rule is used to select members.	Sometimes biased
<b>Convenience sample</b>	Easy-to-reach members are selected.	Often biased
<b>Random sample</b>	Every member has an equal chance of being selected.	Unbiased