Secondary 3

Statistics Unit

**Lesson 1 ~ Sampling**

**Objectives** (I can statements):

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| I can identify whether a sample is a random sample, convenience sample, self-selected sample, or a systematic sample. |
| I can determine an appropriate sampling method for gathering data. |
| I can identify bias in a sampling method. |
| I can identify the difference between an observational study, a controlled experiment, and a survey. |

Prerequisite Knowledge:

Knowing the definitions of population and sample.

**Lesson 2 ~ Measures of Central Tendency and Standard Deviation**

**Objectives** (I can statements):

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| I can find the mean, median, and mode of a data set. (Use a calculator) |
| I can find the standard deviation and variance of a data set. |
| I can calculate the percentile of a given data point. |
| Given a percentile, I can find a data point. |
| I can use the standard deviation to describe data. |

Prerequisite Knowledge:

Summation notation, mean, median, mode, range, boxplots

**Lesson 3 ~ Normal Distribution**

**Objectives** (I can statements):

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| I can describe the characteristics of a normal distribution. |
| I can distingush between a discrete and continuous probablity distribution. (Histograms vs. bell curve) |
| I can explain the 68-95-99.7 rule. |
| I can sketch and label a normal curve.  I can find percentages within intervals on the normal curve. |

Prerequisite knowledge:

Skew, symmetry, probability as relative frequency (percent)

**Lesson 4 ~ Analyzing data using Normal Distributions**

**Objectives** (I Can statements):

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| I can compute and interpret a margin of error. |
| I can calculate a z score and use it to find probabilities. |
| I can compute and interpret confidence intervals (95%). |
| I can use a confidence interval to determine if a value is statistically significant. |
| I can define probability as the area under the curve. |

Prerequisite knowledge:

Information from Lesson 3

Notes: If teaching a “Secondary 3 Basic” class, you may wish to exclude the idea of a z-score, and simply build the confidence intervals and margins of error using the 68-95-99.7 rule and use 2 standard deviations for 95% (as opposed to 1.96 standard deviations for 95%).