Common Core State Standards Used in Unit Plan

**Lesson 1:**

[CCSS.MATH.CONTENT.HSG.SRT.C.8](http://www.corestandards.org/Math/Content/HSG/SRT/C/8/): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

**Lesson 2:**

CCSS.Math.Content.HSF-IF.A.1: Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y* = *f*(*x*).

CCSS.Math.Content.HSF-IF.C.7: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

**Lesson 3:**

[CCSS.MATH.CONTENT.HSF.IF.C.7.B](http://www.corestandards.org/Math/Content/HSF/IF/C/7/b/): Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

[CCSS.MATH.CONTENT.HSF.IF.C.7](http://www.corestandards.org/Math/Content/HSF/IF/C/7/): Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

[CCSS.MATH.CONTENT.HSF.IF.C.7.D](http://www.corestandards.org/Math/Content/HSF/IF/C/7/d/):  Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

[CCSS.MATH.CONTENT.HSF.IF.C.7.E](http://www.corestandards.org/Math/Content/HSF/IF/C/7/e/): Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

**Lesson 4:**

[CCSS.MATH.CONTENT.8.F.A.3](http://www.corestandards.org/Math/Content/8/F/A/3/): Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.

CCSS.MATH.CONTENT.HSF.BF.B.3: Identify the effect on the graph of replacing *f*(*x*) by *f*(*x*) + *k*,*k* *f*(*x*), *f*(*kx*), and *f*(*x* + *k*) for specific values of *k* (both positive and negative); find the value of *k* given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

[CCSS.MATH.CONTENT.HSF.BF.A.1.C](http://www.corestandards.org/Math/Content/HSF/BF/A/1/c/): Compose functions. For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.

**Lesson 5:**

CCSS.Math.Content.HSF-IF.B.4: For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity*.\*