Curriculum: Ginger Lathrop

Learning-Focused Toolbox

Date: October 25, 2011 ET

Teacher / Team Name: Mrs. Lathrop

Topic: Pre-Calculus Trigonometry

Days: 25

Subject(s): Math

Grade(s): 10th, 11th, 12th

Key Learning: **Evaluate and graph the trigonometric functions, their inverses, and reciprocals.**

Unit Essential Question(s): **How do you define trig functions on the unit circle, find trig ratios of acute angles, graph trig functions, and use trig ratios to solve problems?**

Concept: **Radian and Degree Measure**	Concept: **Trigonometric Functions: The Unit Circle**	Concept: **Right Triangle Trigonometry**
Lesson Essential Question(s): How do you describe angles and angular movement? (A)	Lesson Essential Question(s): How do you evaluate trigonometric functions by using the unit circle? (A)	Lesson Essential Question(s): How do you use trigonometry to find unknown side lengths and angles in right triangles? (A)
Vocabulary: trigonometry, angle, initial side, terminal side, vertex, standard position, negative angles, coterminal, radian, complementary, supplementary, degrees, arc length, sector of a circle	Vocabulary: periodic	Vocabulary:

Concept: **Trigonometric Functions of Any Angle**	Concept: **Graphs of Sine and Cosine Functions**	Concept: **Graphs of Other Trigonometric Functions**
Lesson Essential Question(s): How do you evaluate trigonometric functions of any angle? (A)	Lesson Essential Question(s): How do you sketch the graphs of sine and cosine functions? (A)	Lesson Essential Question(s): How do you sketch the graphs of other trigonometric functions? (A)
Vocabulary: reference angle	Vocabulary: one cycle, amplitude, period, phase shift	Vocabulary: bearings

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Concept: **Inverse Trigonometric Functions**	Concept: **Applications and Models**
Lesson Essential Question(s): How do you evaluate and graph the inverses of trigonometric functions? (A)	Lesson Essential Question(s): How do you use trigonometric functions to solve real-life problems? (A)
Vocabulary: inverse sine function, inverse cosine function	Vocabulary:

Additional Information:
Attached Document(s):

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Vocab Report for Topic: Pre-Calculus Trigonometry

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Concept: Radian and Degree Measure

trigonometry -
angle -
initial side -
terminal side -
vertex -
standard position -
negative angles -
coterminal -
radian -
complementary -
supplementary -
degrees -
arc length -
sector of a circle -

Concept: Trigonometric Functions: The Unit Circle

periodic -

Concept: Trigonometric Functions of Any Angle

reference angle -

Concept: Graphs of Sine and Cosine Functions

one cycle -
amplitude -
period -
phase shift -

Concept: Graphs of Other Trigonometric Functions

bearings -

Concept: Inverse Trigonometric Functions

inverse sine function -
inverse cosine function -

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Know:	Understand:	Do:
F.TF.1 – Unranked Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Evaluate and graph the trigonometric functions, their inverses, and reciprocals.	**F.TF.2 – Unranked** Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. **F.TF.3 – Unranked** Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi - x$, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number. **F.TF.4 – Unranked** Graph all six trigonometric functions. Show period, midline, and amplitude. Interpret the meaning of vertical shifting. Show that restricting a trigonometric function to a domain on which it is one-to-one allows its inverse to be constructed. **G.SRT.9 – Unranked** Derive the formula $A = \frac{1}{2}ab\sin(C)$ for the area of a triangle. Use the Pythagorean Theorem to solve right triangles in applied problems.

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Which standards are students learning in this unit?

F.TF.1 -- Unranked

Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

F.TF.2 -- Unranked

Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

F.TF.3 -- Unranked

Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for x, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number.

F.TF.5 -- Unranked

Understand that restricting a trigonometric function to a domain on which it is one-to-one allows its inverse to be constructed.

G.SRT.8 -- Unranked

Use sine, cosine, tangent, and the Pythagorean Theorem to solve right triangles in applied problems.