WAUCONDA SCHOOL DISTRICT 118
UNIT PLANNING ORGANIZER

Subject: Algebra IIB

Unit: 1 Trigonometry

Pacing: 32-34 days

STAGE 1 – DESIRED RESULTS

Essential Questions:
- **How do you convert angle measures between degrees and radians and why would this be necessary?**
- **How do you determine the amplitude and period of a trigonometric function without looking at the graph of the function?**
- **What information does a trigonometric function provide of is graph, and vice versa?**
- **How are the rules of algebra applied to prove trigonometric identities?**

Big Ideas:
- **Trigonometric functions can help us determine angle measures and side lengths in triangles.**
- **Trigonometric functions can help you to describe and analyze periodic relationships and change using words and symbols.**
- **When a relationship appears to be periodic in nature, then it is appropriate to consider a trigonometric function to model the relationship.**
- **Periodic behavior is behavior that repeats over intervals of equal length.**
- **The unit circle can be used to evaluate and solve trigonometric functions.**
- **Algebraic rules must be applied to prove trigonometric identities.**

CCSS (Priority Standards):
- **F.TF.1: Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.**
- **F.TF.2: 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.5: Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.**
- **F.TF.8: Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.**

STAGE 2 – EVIDENCE

Concepts (What students need to know)	Performance Tasks (What students will be able to do)	21st Century Skills
- Trigonometry with Right Angles - General Angles and Using Radian Measure - Unit Circle - Evaluating Trigonometric Functions of Any Angle - Interpreting the Graph of Trigonometric Functions - Simplifying Trigonometric Identities - Verifying Trigonometric Identities	Convert angle measures between degrees and radians - Find complements and supplements to angles - Graph radian angles - Review special right triangles - Find the values of trigonometric functions on the unit circle - Find the amplitude and period of sine and cosine functions - Sketch the graphs of sine and cosine functions - Simplify trigonometric identities - Verify trigonometric identities	

Common Formative/Summative Assessments:
- ➢ Unit 1 Test A (Unit Circle and Angles)
- ➢ Unit 1 Test B (Graphing Trigonometric Functions)
- ➢ Unit 1 Test C (Identities and Verifying)
- ➢ Unit 1 Journal A
- ➢ Unit 1 Journal B

Interim Assessments (Informal Progress Monitoring checks):
- ➢

Modified Common Assessments:

Modified Interim Assessments:

STAGE 3 – LEARNING PLAN
(INSTRUCTIONAL PLANNING)

Suggested Resources/Materials/Informational Texts

Suggested Research-based Effective Instructional Strategies

Identifying Similarities and Differences - The ability to break a concept into its similar and dissimilar characteristics allows students to understand (and often solve) complex problems by analyzing them in a more simple way. Teachers can either directly present similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own. While teacher-directed activities focus on identifying specific items, student-directed activities encourage variation and broaden understanding, research shows.

Summarizing and Note Taking - These skills promote greater comprehension by asking students to analyze a subject to expose what's essential and then put it in their own words. According to research, this requires substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented.

Cues, Questions, and Advance Organizers Cues - Questions, and advance organizers help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented before a learning experience

Cooperative Learning - Research shows that organizing students into cooperative groups yields a positive effect on overall learning. When applying cooperative learning strategies, keep groups small and don't overuse this strategy-be systematic and consistent in your approach.

Reinforcing Effort and Providing Recognition - Effort and recognition speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that although not all students realize the importance of effort, they can learn to change their beliefs to emphasize effort.

Taken from: *Marzano's Nine Instructional Strategies for Effective Teaching and Learning*

Academic Vocabulary/ Word Wall	Enrichment/Extensions/ Modifications
Essential Vocabulary: Degrees Radians Sine Cosine Tangent Cosecant	

Secant Cotangent Unit Circle Trigonometric Ratios Periodic Functions Period Cycle Amplitude Reciprocal Identities Pythagorean Identities Quotient Identities	