

Wilson Area School District Planned Course Guide

Title of planned course: Trigonometry

Subject Area: Mathematics

Grade Level: 11 – 12

Course Description: Review and expand on periodic functions, defining and using the six trigonometric functions. Trigonometric applications include trigonometric function evaluations and operations, equations, identities and the inverse of trigonometric functions, table values, solving right and oblique triangles, and the Laws of Sines and Cosines.

Time/Credit for this Course: 0.5 Academic Year / 0.5 Credit

Curriculum Writing Committee: Michael Fowler

Curriculum Map

<u>August / January</u>	Trigonometric Functions
<u>September / February</u>	Trigonometric Functions
<u>October / March</u>	Trigonometric Functions Analytic Trigonometry
<u>November / April</u>	Analytic Trigonometry
<u>December / May</u>	Analytic Trigonometry Trigonometric Laws
<u>January / June</u>	Trigonometric Laws

Planned Course Materials

Course Title: Pre-Calculus

Textbook: Blitzer Pre-Calculus 4e
Pearson / Prentice Hall
2010

Teacher Resources:

- Textbook
- Multimedia
- Calculators
- Worksheets
- Smartboard

Curriculum Scope & Sequence

Planned Course: Trigonometry

Unit: Trigonometric Functions

Time frame: 18 – 20 Blocks

State Standards: 2.2.11.C, 2.5.11.A, 2.5.11.B, 2.8.11.B, 2.8.11.C, 2.8.11.D, 2.8.11.E, 2.8.11.F, 2.10.11.A, 2.10.11.B

Anchor(s) or adopted anchor: M11.A.2, M11.C.1, M11.D.1, M11.D.2, M11.D.4

Essential content/objectives: At the end of the unit, students will be able to:

- Convert between radians and degrees, then graph in standard position and find the coterminal angles
- Use a unit circle to define trigonometric functions of real number
- Use right triangles to evaluate trigonometric functions
- Use the definitions and signs of trigonometric functions
- Graph any equation involving the six trigonometric functions
- Find the exact values of composite functions with inverse trigonometric functions
- Solve right triangles, problems involving bearings, and simple harmonic motion

Core Activities: Students will complete/participate in the following:

- Modeling concepts
- Guided and independent practice
- Label the unit circle
- Group work involving application problems

Extensions:

- Find the equation of a trigonometric graph given only the graph
- Create trigonometric expressions for the class to solve
- Alternate worksheet with more challenging problems

Remediation:

- Review of notes and example problems to reinforce lesson concepts
- Study Island Activity (ie activity: 2a, 3b, 3e, 4c)
- Peer or teacher tutoring

Instructional Methods:

- Direct instruction
- Notes on the board (smart board when available)
- Small group discussions

Materials & Resources:

- Textbook
- Multimedia
- Calculators
- Worksheets

Assessments:

- Homework Assignments
- Quizzes and Tests
- Observations

Curriculum Scope & Sequence

Planned Course: Trigonometry

Unit: Analytic Trigonometry

Time frame: 8 – 10 Blocks

State Standards: 2.2.11.C, 2.4.11.A, 2.4.11.B, 2.5.11.A, 2.5.11.B, 2.8.11.B, 2.8.11.C, 2.8.11.D, 2.8.11.E, 2.8.11.F, 2.10.11.B

Anchor(s) or adopted anchor: M11.A.2, M11.C.1, M11.D.1, M11.D.2, M11.D.4

Essential content/objectives: At the end of the unit, students will be able to:

- Use the fundamental trigonometric identities to verify identities
- Use the sum and difference formulas for sine, cosine, and tangent
- Use the double-angle, power-reducing, and half-angle formulas
- Use the product-to-sum and sum-to-product formulas
- Solve trigonometric equations using the identities and formulas

Core Activities: Students will complete/participate in the following:

- Modeling concepts
- Guided and independent practice
- Group work involving application problems

Extensions:

- Alternate worksheet with more challenging problems
- Verify identities involving the formulas

Remediation:

- Review of notes and example problems to reinforce lesson concepts
- Study Island Activity (ie activity: 2a, 3b, 3e)
- Peer or teacher tutoring

Instructional Methods:

- Direct instruction
- Notes on the board (smart board when available)
- Small group discussions

Materials & Resources:

- Textbook
- Multimedia
- Calculators
- Worksheets

Assessments:

- Homework Assignments
- Quizzes and Tests
- Observations

Curriculum Scope & Sequence

Planned Course: Trigonometry

Unit: Trigonometric Laws

Time frame: 13 – 15 Class Periods

State Standards: 2.2.11.C, 2.5.11.A, 2.5.11.B, 2.8.11.B, 2.8.11.C, 2.8.11.D, 2.8.11.E, 2.8.11.F, 2.10.11.B

Anchor(s) or adopted anchor: M11.A.2, M11.C.1, M11.D.1, M11.D.2, M11.D.4

Essential content/objectives: At the end of the unit, students will be able to:

- Use the law of sines to solve the triangle(s) and application problems
- Use the law of cosines to solve oblique triangles and application problems
- Find the area of a triangle using law of sines or Heron's formula
- Solve application problems involving vectors

Core Activities: Students will complete/participate in the following:

- Modeling concepts
- Guided and Independent practice
- Group work involving solving application problems

Extensions: Alternate worksheet with more challenging problems

Remediation:

- Review of notes and example problems to reinforce lesson concepts
- Study Island Activity (ie activity: 2a, 2b, 3b)
- Peer or teacher tutoring

Instructional Methods:

- Direct instruction
- Lecture
- Notes on the board (smart board when available)
- Small group discussions

Materials & Resources:

- Textbook
- Multimedia
- Calculators
- Worksheets

Assessments:

- Homework Assignments
- Quizzes and Tests
- Observations