

## WARREN COUNTY SCHOOL DISTRICT

### PLANNED INSTRUCTION

#### **COURSE DESCRIPTION**

**Course Title:** Trigonometry Virtual

**Course Number:** 10275

**Course Prerequisites:** Recommended grade of at least 75% in Algebra I CP, Algebra II CP, and Geometry CP

**Course Description:** Trigonometry is offered for students who want to continue a rigorous study of mathematics. The course begins by reviewing the real number system, characteristics of functions, and solving equations. Topics from right-triangle trigonometry lead to an in-depth study of the unit circle and trigonometric functions, their graphs, and their inverses. In their study of analytic trigonometry, students verify identities and solve trigonometric equations. The course covers the Law of Cosines, the Law of Sines, and vectors. It closes with a complete study of conics, parametric equations, and polar curves.

**Suggested Grade Level:** Grades 9-12

**Length of Course:** One Semester

**Units of Credit:** .5

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**  
CSPG 50

To find the CSPG information, go to [CSPG](#)

**Certification verified by the WCSD Human Resources Department:** ☒ Yes ☐ No

#### **WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

☒ F – Final Average ☒ MP – Marking Period ☒ EXM – Final Exam

**GPA Type:** ☐ GPAEL-GPA Elementary ☐ GPAML-GPA for Middle Level ☒ NHS-National Honor Society

☒ UGPA-Non-Weighted Grade Point Average ☒ GPA-Weighted Grade Point Average

**State Course Code:** 02103

To find the State Course Code, go to [State Course Code](#), download the Excel file for SCED, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

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**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:** Trigonometry  
**Publisher:** Schools PLP  
**ISBN #:** NA  
**Copyright Date:** NA  
**WCSD Board Approval Date:** NA

**Supplemental Materials:** Word processing software, Calculator

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 1/20/2022  
**Date Approved:** 2/7/2022  
**Implementation Year:** 2021-2022

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

### **Unit 1: Prerequisites to Trig**

#### **What will you learn in this unit?**

- Real Number System
- Simplifying Expressions
- Solving Equations
- Functions – Domain and Range, Even and Odd, Inverse, Zeros and Intervals, Parent Functions, Reflections and Shifts, Vertical and Horizontal Stretch and Shrink
- Functions and Transformations

### **Unit 2: Foundations of Trig**

#### **What will you learn in this unit?**

- Describing Angles
- Co-terminal Angles
- Complementary and Supplemental Angles
- Arc Length and Area of a Sector
- Linear and Angular Speed
- Unit Circle
- Trig Functions
- Evaluating Trig Functions
- Right Triangles
- Special Triangles
- Fundamental Trig Identities
- Elevation and Depression
- Trig Ratios
- Reference Angles and Identities

### **Unit 3: Trig Graphs and Inverses**

#### **What will you learn in this unit?**

- Sine and Cosine – Curve, Amplitude, Period, Horizontal and Vertical Shift, Translations, Modeling
- Tangent, Cotangent
- Secant and Cosecant
- Graphing Trig Functions
- Inverses

#### **Unit 4: Analytic Trigonometry**

##### **What will you learn in this unit?**

- Evaluating Trig Functions
- Simplifying and Factoring Trig Expressions
- Verifying Identities
- Solving Trig Equations
- Sum and Difference
- Double Angle Formulas
- Power-Reducing Formulas
- Half-Angle Formulas
- Product and Sum Formulas
- Simplify and Solving Using Identifies

#### **Unit 5: Oblique Triangles**

##### **What will you learn in this unit?**

- Law of Sines and Law of Cosines
- Applications of Law of Sines and Law of Cosines
- Solving Triangles
- Area of Oblique Triangles
- Heron's Area Formula

#### **Unit 6: Directions in Trigonometry**

##### **What will you learn in this unit?**

- Bearing vs. Standard Position
- Vectors
- Trigonometric Form of Vectors
- Operations with Vectors
- Resultant Vectors
- Angle Between Vectors
- Applications of Vectors

#### **Unit 7: Analytic Geometry**

##### **What will you learn in this unit?**

- Inclination of Lines
- Angles between Lines
- Distance between objects
- Conics

- Parabolas and Parabola Reflective Property
- Ellipses
- Hyperbola
- Eccentricity
- Classifying Conics and Rotations
- Discriminants

### **Unit 8: Parametric and Polar**

#### **What will you learn in this unit?**

- Intro to Parametric Equations
- Sketching Parametrics
- Parametric Applications
- Plotting Polar
- Graph Polar Equations
- Zeros and Max R-values
- Circles and Limaçons
- Rose and Lemniscate curves
- Classify Special curves

### **ASSESSMENTS**

**PDE Academic Standards, Assessment Anchors, and Eligible Content:** The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:** quizzes and discussions

**Summative Assessments:** The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:** projects, essays, tests, and exams