



PRECALCULUS UNIT PLANNER



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| Unit title | Unit 1 – Intro to Trig Functions | Unit duration | 12 days (4 - 5 weeks) |
| Essential Questions (OR GUIDING QUESTIONS?) | | | |
| <ul style="list-style-type: none"> • How do I think of an angle as the rotation of a ray about its endpoint? • What is meant by the radian measure of an angle? • What is the connection between the radian measure of an angle and the length of the arc on the unit circle the angle intercepts? • What does the unit circle have to do with trigonometric functions? | | | |
| Assessments | | | |
| <p>Common Formative Assessment – Trig Functions Quiz Intro to Trig Quiz Unit Circle Quiz – every day once unit circle is taught, students retake until they pass</p> <p>Common Summative Assessment – Unit Test</p> | | | |
| Content Standards | | | |
| <p><u>Extend the domain of trigonometric functions using the unit circle</u> MGSE9-12.F.TF.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle. MGSE9-12.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.</p> | | | |

Prove and apply trigonometric identities

MGSE9-12.F.TF.8 Prove the Pythagorean identity $(\sin A)^2 + (\cos A)^2 = 1$ and use it to find $\sin A$, $\cos A$, or $\tan A$, given $\sin A$, $\cos A$, or $\tan A$, and the quadrant of the angle.

The following standards will be addressed with Unit 2 – Graphing Trigonometric Functions

Interpret functions that arise in applications in terms of the context

MGSE9-12.F.IF.4 Using tables, graphs, and verbal descriptions, interpret the key characteristics of a function which models the relationship between two quantities. Sketch a graph showing key features including: intercepts; interval(s) where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

Model periodic phenomena with trigonometric functions

MGSE9-12.F.TF.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

Analyze functions using different representations

MGSE9-12.F.IF.7 Graph functions expressed algebraically and show key features of the graph both by hand and by using technology.

MGSE9-12.F.IF.7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

Learning Activities and Experiences

| Topic | Resource | Content Covered | Standards Addressed |
|---|---|---|------------------------------------|
| Right Triangles and Trig | Right Triangle Trig Review | <ul style="list-style-type: none"> Recognize and label right triangles in real life scenarios Use right triangle trig to find values in triangles. | |
| | 7-1 Trigonometric Functions and Acute Angles Pearson enVision pg. 357 - 364 | <ul style="list-style-type: none"> Use special triangles to determine trigonometric ratios geometrically. Use trigonometric functions and the Pythagorean Theorem to find missing side lengths. Identify and explain trigonometric identities. | MGSE9-12.F.TF.1 MGSE9-12.F.TF.2 |
| | Additional Resources: | | |
| Unit Circle and Finding the Value of Trig Functions | 7-2 Angles and the Unit Circle Pearson enVision pg. 365 – 375 | <ul style="list-style-type: none"> Find the measures of an angle in standard position and its reference angle. Use radian measure on the unit circle to find arc length. Convert between degrees and radians. | MGSE9-12.F.TF.1 MGSE9-12.F.TF.2 |

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| | <p>7-3 Trigonometric Functions and Real Numbers Pearson enVision pg. 376 - 382</p> | <ul style="list-style-type: none"> ● Use reference angles and triangles to evaluate trigonometric functions and their reciprocal functions. ● Use the Pythagorean Theorem to find the sine, cosine, and quadrant of an angle. | <p>MGSE9-12.F.TF.1 MGSE9-12.F.TF.2 MGSE9-12.F.TF.8</p> |
| <p>Additional Resources:</p> | | | |

Personalised Learning and Differentiation

Teachers differentiate by providing examples (work samples or task-specific clarifications of assessment criteria); structuring support (advance organizers, flexible grouping, peer relationships); establishing flexible deadlines, and adjusting the pace.

- SWD/504- Accommodations provided
- ELL- Five Principle ELL Curriculum Framework and Vocabulary Supports
- Intervention Support- Re-teaching Activities in Small Groups with Progress Monitoring
- Extensions- Enrichment Tasks and Projects

Resources

DOE Framework Tasks
Pearson enVision Textbook and Pearson Realize Online Resources