Unit 04: Bearings

Content Area: **Mathematics**
Course(s): **Generic Course**
Time Period: **Semester 1**
Length: **2 weeks**
Status: **Published**

Standards

	Modeling Standards: Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol ().
MA.F-LE.A.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.
MA.F-TF.A.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
MA.F-TF.A.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.
MA.F-TF.A.3	Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π/4 and π/6, and use the unit circle to express the values of sine, cosines, and tangent for π − , π + , and 2π − in terms of their values for , where is any real number.

Enduring Understandings

Students will understand that trigonometric problems can occur in the real world especially involving navigation. Students will be able to map out a diagram for given information and solve for missing bearing or length.

Essential Questions

How can you evaluate trig expressions and solve trig equations using a calculator?

How are the angles of triangle related to the ratio of its sides and how do we solve for one or the other?

How can trigonometry be used to solve real-life problems?

How is trigonometry used for navigational purposes?

Knowledge and Skills

- Simplify trig expressions.
- Evaluate trig expressions and solving trig equations using a calculator.
- Solve right triangles in relation to word problems.
- Solve two different types of bearing problems.

Transfer Goals

Recognize and solve practical or theoretical problems involving mathematics, including those for which the solution approach is not obvious, by using mathematical reasoning and strategic thinking.

Creating diagrams to model real-world problems can lead to creating solutions.

Resources

Precalculus: Graphical, Numerical, Algebraic 10th Edition

Desmos/Amplify

Deltamath

Problem-Attic

Geogebra