## UNIT OF STUDY

**Title:** “What’s Your Angle?” (Unit 18)  
**Subject/Course:** Integrated Algebra B Part 2  
**Length:** 2 ½ weeks

**Grade:** 9  
**Designer:** Foresee/Phipps

### UNIT GOALS AND EXPECTATIONS

#### IMPORTANT CONCEPTS/UNDERSTANDINGS:
- The solutions of a polynomial determine the zeros & x-intercepts on its graph
- Quadratics equations can have zero, one, or two real solutions
- Similar units of dimension always are placed in the same spot in a ratio
- Sin, Cos, & Tan all deal with right triangles
- Absolute Values equations can have zero, one, or two real solutions
- The adjacent/opposite side of a right triangle is not necessarily located in the same place every time

#### ESSENTIAL QUESTIONS:
- How do I tell if a polynomial/equation is a perfect square?
- What are the different ways of solving a quadratic equation?
- How do I tell the difference between an adjacent versus an opposite leg of a right triangle?
- Does “Cross-Multiply-&-Divide” always work for proportions?
- Why does “Cross Multiply” work in a proportion?

#### STUDENT LEARNING EXPECTATIONS:
- NLF.3.AI.3 Solve quadratic equations using the appropriate methods with and without technology  
  - factoring  
  - quadratic formula with real number solutions
- SEI.2.AI.4 Solve and graph simple absolute value equations and inequalities  
  Ex. |x| = 5,  |x| ≤ 5,  |x| > 5

#### SPECIFIC DECLARATIVE KNOWLEDGE – What I know

**Vocabulary**
- Adjacent
- Cosine
- Equivalent
- Hypotenuse
- Opposite
- Proportion
- Quadratic Equations
- Ratio
- Right Triangles
- Sine
- Tangent
- Absolute Values
- Zeros

#### SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do
- Solve for a variable from a given polynomial equation
- Writing equivalent ratios
- Solving simple proportions
- Solving real world problems involving proportions
- Use Trigonometric Ratios to solve real world problems
- Write trig equations
- Solve proportions by multiplying both ratios by the other’s denominator (cross-multiply) and then solving the equation

#### SPECIFIC ASSESSMENTS

(Include tasks related to Dimensions 3 and 4 and Bloom’s Taxonomy)
- 3 Open Response prompts requiring students to solve real world problems using trigonometric ratios
- “Building Heights” Activity
### Traditional Assessments:
- Multiple Choice Quizzes over: solving polynomials, solving proportions, solving trigonometric ratios, solving absolute values
- Vocabulary Test
- Warm-Up Quizzes
- Unit Test

### Other Evidence of Learning:
- “Homelearning”
- Classwork
- Warm-up exercises

### ACTIVITIES AND LEARNING EXPERIENCES
- Introduce Vocabulary using 4-Step Vocabulary Strategy
- Use Mastery Math materials to practice concepts
- “GCF and Factoring” PowerPoint
- “Perplexing Polynomial Puzzle”
- “Baseball Diamond” Activity
- “Building Heights” Activity
- “Slap the Board”

### Resources
- Vocabulary List
- 4-Step Vocabulary Worksheet
- Mastery Math materials
- (same url for “Perplexing Polynomial Puzzle”)

### Career Connections