Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Operations with Complex Numbers

Key Learning(s): The students will
Represent and/or use imaginary numbers in equilalent form (square roots and exponents)

Optional Instructional Tools:

Unit Essential Question(s):
How do you represent and/or use imaginary numbers in equivalent form (square roots and exponents)?

Concept: A2.1.1.1.1 Simplify/write square roots in terms of i	**Concept:** A2.1.1.1.2 Simplify/evaluate expressions involving powers of i	**Concept:**
Lesson Essential Questions: How do you write square roots in terms of i?	**Lesson Essential Questions:** How do you evaluate expressions involving powers of i?	**Lesson Essential Questions:**
Vocabulary: Imaginary unit, square root property	**Vocabulary: expressions, i, evaluate**	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Operations with Complex Numbers

Key Learning(s): The students will
Apply the order of operations in computation and in problem-solving situations.

Optional Instructional Tools:

Unit Essential Question(s):
How do you apply the order of operations in computation and in problem-solving situations?

Concept: A2.1.1.2.1 Add and subtract complex numbers	**Concept:** A2.1.1.2.2 Multiply and divide complex numbers	**Concept:**
Lesson Essential Questions: How do you add and subtract complex numbers?	**Lesson Essential Questions:** How do you multiply and divide complex numbers?	**Lesson Essential Questions:**
Vocabulary: Complex number	**Vocabulary:** Complex conjugates	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Non-Linear Expressions

Key Learning(s): The students will
Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems

Optional Instructional Tools:

Unit Essential Question(s):
How do you use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems?

Concept: A2.1.2.1.1 Use exponential expressions to represent rational numbers.	**Concept:** A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots (may contain all types of real numbers—exponents should not exceed power of 10).	**Concept:** A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents (e.g., $x6 \cdot x7 = x13$), powers of powers (e.g., $(x6)7 = x42$) and powers of products (e.g., $(2x2)3 = 8x6$). Note: Limit to rational exponents.
Lesson Essential Questions: How do you use exponential expressions to represent rational numbers?	**Lesson Essential Questions:** How do you simplify/evaluate expressions involving positive and negative exponents and/or roots?	**Lesson Essential Questions:** How do you simplify/evaluate expressions involving multiplying with exponents (e.g., $x6 \cdot x7 = x13$), powers of powers (e.g., $(x6)7 = x42$) and powers of products (e.g., $(2x2)3 = 8x6$)?
Vocabulary: Simplify, scientific notation	**Vocabulary:simplify, evaluate, roots**	**Vocabulary: simplify, evaluate**

Concept: A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents (e.g., log28 = 3 or log42 = 1 } 2).	**Concept:**	**Concept:**
Lesson Essential Questions: How do you simplify or evaluate expressions involving logarithms and exponents (e.g., log28 = 3 or log42 = 1 } 2)?	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary: Logarithm, logarithmic function, logarithmic equation	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Non-Linear Expressions

Key Learning(s): The students will
Simplify expressions involving polynomials.

Optional Instructional Tools:

Unit Essential Question(s):
How do you simplify expressions involving polynomials?

Concept: A2.1.2.2.1 Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials limited to the form $ax2+bx+c$ where a is not equal to 0.	**Concept:** A2.1.2.2.2 Simplify rational algebraic expressions.	**Concept:**
Lesson Essential Questions: How do you factor algebraic expressions, including difference of squares and trinomials?	**Lesson Essential Questions:** How do you simplify rational algebraic expressions?	**Lesson Essential Questions:**
Vocabulary: Quadratic form, trinomial, intercept form	**Vocabulary:** Rational expressions	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Non-Linear Equations

Key Learning(s): The students will
Write and/or solve nonlinear equations using various methods.

Optional Instructional Tools:

Unit Essential Question(s):
How do you write and/or solve nonlinear equations using various methods.

Concept: A2.1.3.1.1 Write and/or solve quadratic equations (including factoring and using the Quadratic Formula).	**Concept:** A2.1.3.1.2 Solve equations involving rational and/or radical expressions (e.g., $10/(x + 3) + 12/(x – 2) = 1$ or Ï} $x\ 2 + 21x = 14$).	**Concept:** A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation (including common and natural logarithms).
Lesson Essential Questions: How do you write and/or solve quadratic equations (including factoring and using the Quadratic Formula).	**Lesson Essential Questions:** How do you solve equations involving rational and/or radical expressions?	**Lesson Essential Questions:** How do you write and/or solve a simple exponential or logarithmic equation (including common and natural logarithms)?
Vocabulary: Quadratic function, linear term, constant term, root, zero	**Vocabulary:** Rational expression, radical expression	**Vocabulary:** Logarithm, natural logarithm, common base, e

Concept: A2.1.3.1.4 Write, solve, and/or apply linear or exponential growth or decay (including problem situations).	**Concept:**	**Concept:**
Lesson Essential Questions: How do you write, solve, and/or apply linear or exponential growth or decay (including problem situations).	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Non-Linear Equations

Key Learning(s): The students will
Describe and/or
determine change.

Optional Instructional Tools:

Unit Essential Question(s):
How do you describe and/or
determine change?

Concept: A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable (e.g., $y = 4/x$; if x doubles, what happens to y?).	**Concept:** A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable (e.g., solve $d = rt$ for r).	**Concept:**
Lesson Essential Questions: How do you Determine how a change in one variable relates to a change in a second variable?	**Lesson Essential Questions:** How do you Use algebraic processes to solve a formula for a given variable?	**Lesson Essential Questions:**
Vocabulary: Variable, rate of change,	**Vocabulary: algebraic**	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Patterns, Relations and Functions.

Key Learning(s): The students will
Analyze and/or use
patterns or relations.

Unit Essential Question(s):
How do you analyze and/or use
patterns or relations?

Optional Instructional Tools:

Concept: A2.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern with a rule algebraically and/or graphically.	**Concept:** A2.2.1.1.2 Identify and/or extend a pattern as either an arithmetic or geometric sequence (e.g., given a geometric sequence, find the 20th term).	**Concept:** A2.2.1.1.3 Determine the domain, range, or inverse of a relation.
Lesson Essential Questions: How do you analyze a set of data for the existence of a pattern and represent the pattern with a rule algebraically and/or graphically?	**Lesson Essential Questions:** How do you identify and/or extend a pattern as either an arithmetic or geometric sequence?	**Lesson Essential Questions:** How do you determine the domain, range, or inverse of a relation?
Vocabulary: Ordered pair,	**Vocabulary:** Geometric sequence, common ratio, geometric means	**Vocabulary:** Domain, range, inverse, mapping

Concept: A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function (e.g., intervals of increase/decrease, intercepts, zeros, and asymptotes).	**Concept:**	**Concept:**
Lesson Essential Questions: How do you identify and/or determine the characteristics of an exponential, quadratic, or polynomial function	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary: Intercepts, zeros, asymptotes	**Vocabulary:**	**Vocabulary:**

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Applications of Functions.

Key Learning(s): The students will
create, interpret, and/or use polynomial, exponential, and/or logarithmic functions and their equations, graphs, or tables.

Optional Instructional Tools:

Unit Essential Question(s):
How do you create, interpret, and/or use polynomial, exponential, and/or logarithmic functions and their equations, graphs, or tables?

Concept: **A2.2.2.1.1** Create, interpret, and/or use the equation, graph, or table of a polynomial function (including quadratics).	**Concept:** **A2.2.2.1.2** Create, interpret, and/or use the equation, graph, or table of an exponential or logarithmic function (including common and natural logarithms).	**Concept:**
Lesson Essential Questions: How do you create, interpret, and/or use the equation, graph, or table of a polynomial function?	**Lesson Essential Questions:** How do you create, interpret, and/or use the equation, graph, or table of an exponential or logarithmic function?	**Lesson Essential Questions:**
Vocabulary: Polynomial,	**Vocabulary:** Logarithm, exponent	**Vocabulary:**

Concept: A2.2.2.1.3 Determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function.	**Concept:** A2.2.2.1.4 Translate a polynomial, exponential, or logarithmic function from one representation of a function to another (graph, table, and equation).	**Concept:**
Lesson Essential Questions: How do you determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function?	**Lesson Essential Questions:** How do you Translate a polynomial, exponential, or logarithmic function from one representation of a function to another?	**Lesson Essential Questions:**
Vocabulary: Maximum, minimum,	**Vocabulary:**	**Vocabulary:**

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Applications of Functions.

Key Learning(s): The students will
Describe and/or determine families of functions.

Optional Instructional Tools:

Unit Essential Question(s):
How do you describe and/or determine families of functions?

Concept: A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions (e.g., $y = x2$ and $y = x2 + 3$, or $y = x2$ and $y = 3x2$).	**Concept:**	**Concept:**
Lesson Essential Questions: How do you Identify or describe the effect of changing parameters within a family of functions?	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary: Slope intercept, y intercept, slope	**Vocabulary:**	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Data Analysis

Key Learning(s): The students will
analyze and/or interpret data on a scatter plot and/or use a scatter plot to make predictions.

Optional Instructional Tools:

Unit Essential Question(s):
How do you analyze and/or interpret data on a scatter plot and/or use a scatter plot to make predictions.

Concept: A2.2.3.1.1 Draw, identify find, interpret, and/or write an equation for a regression model (lines and curves of best fit) for a scatter plot**.**	**Concept:** A2.2.3.1.2 Make predictions using the equations or graphs of regression models (lines and curves of best fit) of scatter plots.	**Concept:**
Lesson Essential Questions: How do you draw, identify find, interpret, and/or write an equation for a regression model (lines and curves of best fit) for a scatter plot?	**Lesson Essential Questions:** How do you make predictions using the equations or graphs of regression models (lines and curves of best fit) of scatter plots?	**Lesson Essential Questions:**
Vocabulary: Scatter plot, line of fit	**Vocabulary:** substitution	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info:

Decision 1: Curriculum Map **Course:** **CP Algebra 2**

Topic: Data Analysis

Key Learning(s): The students will
A2.2.3.2
Apply probability to practical situations.

Optional Instructional Tools:

Unit Essential Question(s):
How do you apply probability to practical Situations?

Concept: A2.2.3.2.1 Use combinations, permutations, and the fundamental counting principle to solve problems involving probability.	**Concept:** A2.2.3.2.2 Use odds to find probability and/or use probability to find odds.	**Concept:** A2.2.3.2.3 Use probability for independent, dependent, or compound events to predict outcomes.
Lesson Essential Questions: How do you use combinations, permutations, and the fundamental counting principle to solve problems involving probability?	**Lesson Essential Questions:** How do you use odds to find probability and/or use probability to find odds?	**Lesson Essential Questions:** How do you use probability for independent, dependent, or compound events to predict outcomes?
Vocabulary: Combination, permutation, fundamental counting principal	**Vocabulary:** Mean, median, mode, range	**Vocabulary:**

Concept:	**Concept:**	**Concept:**
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary:	**Vocabulary:**	**Vocabulary:**

Attached Document(s):

Additional Info: