



Essential Learnings Quarter View

Mt. Vernon Community School Corporation is committed to providing a guaranteed and viable curriculum for all students. A guaranteed curriculum ensures all students have the opportunity to learn the same essential learnings (EL's) or the curriculum that is determined to be essential for students to learn during the course. A viable curriculum ensures it is possible for all students to learn in the allotted time. The curriculum blueprint below lists the essential learnings students will be taught and assessed during each nine (9) week quarter as well as the resource themes that support the learning targets. The goal is for every student to become proficient in every essential learning by the end of the school year.

Algebra II

1st Quarter

- **EL #1 Equations & Functions (Chapters 1 & 2)**
 - I can describe the effects of transformations on or from parent functions and determine the corresponding values.
 - I can graph square-root, piecewise, and absolute value functions.
 - I can identify and describe x & y-intercepts, domain/range, and end behavior.
 - I can identify parent functions by equations & graphs.
 - I can solve an absolute value equation.
 - I can solve an absolute value inequality.
- **EL #2 Quadratic Functions & Relations (Chapter 4)**
 - I can explain or describe the concepts of imaginary numbers.
 - I can simplify and conduct operations for complex numbers.
 - I can create and solve real-world problems involving quadratic functions using graphs, tables, and equations.
 - I can interpret real-world problems involving quadratic functions using graphs, tables, and equations.
 - I can use completing the square to go between standard form and vertex form.
 - I can graph using vertex form using the vertex, y-intercept, and zeros to interpret domain, range, and axis of symmetry.
 - I can graph a quadratic equation using vertex and standard form.
 - I can translate between vertex and standard form.
 - I can identify all key features of a quadratic functions graph.
 - I can identify and use the discriminant within quadratic formula to determine the number and types of solutions.
 - I can solve a quadratic function using various methods and interpret the solution.
 - I can explain what complex solutions are and will write them in the correct form.
 - I can graph quadratic functions.
 - I can identify and describe y-intercepts, zeros, domain/range, end behavior, and axis of symmetry.
 - I can graph a quadratic function using transformations.
 - I can describe the transformation of the parent function.
- **EL #3 Polynomial Functions (Chapter 5)**
 - I can simplify complex expressions using properties of exponents.
 - I can use long division to simplify rational expressions into one polynomial.
 - I can use synthetic division to simplify rational expressions into one polynomial.
 - I can solve real-world mathematical equations involving polynomial equations using various methods like factoring, rational root theorem, and quadratic formula.

- I can interpret real-world solutions from solving polynomial equations.
- I can graph polynomial functions.
- I can identify and describe y-intercepts, zeros, & end behaviors of polynomial functions.

2nd Quarter

● EL #3 Polynomial Functions (Chapter 5)

- I can simplify complex expressions using properties of exponents.
- I can use long division to simplify rational expressions into one polynomial.
- I can use synthetic division to simplify rational expressions into one polynomial.
- I can solve real- world mathematical equations involving polynomial equations using various methods like factoring, rational root theorem, and quadratic formula.
- I can interpret real-world solutions from solving polynomial equations.
- I can graph polynomial functions.
- I can identify and describe y-intercepts, zeros, & end behaviors of polynomial functions.

● EL #4 Systems of Equations (Chapter 3)

- I can solve a system of equations involving linear and quadratic equations graphically with or without technology.
- I can solve a system of equations involving linear and quadratic equations algebraically.
- I can solve a system of equations involving two variables algebraically.
- I can solve a system of equations involving three variables algebraically.
- I can solve a system of inequalities.
- I can interpret or describe solution in real- world terms.
- I can solve a system of equations involving three variables algebraically.
- I can explain how a 3 variable system of equations can be solved using 2 variable methods.

● EL #5 Rational Expressions & Equations (Chapter 8)

- I can rewrite rational expressions using properties of exponents.
- I can rewrite rational expressions using factoring.
- I can add/subtract rational expressions with common denominators.
- I can solve rational real-world and mathematical equations.
- I can identify and explain extraneous solutions and when they occur.

● EL#6 Inverse & Radical Functions/Equations (Chapter 6)

- I can relate the properties of exponents with integers to properties of exponents with rational numbers.
- I can connect rational exponents to their equivalent radical form.
- I can understand and explain the process of composition functions.
- I can demonstrate the process of composition of functions.
- I can find the inverse of a function.
- I can explain why a function has an inverse or not.
- I can understand that the inverse of a function is switching the domain and range.
- I can graph a function and its inverse to show that the inverse is a reflection of the function over the line $y = x$.
- I can graph a square root function using transformations.
- I can describe the transformation of the parent function.
- I can graph square root functions.
- I can describe key features of the function: starting point, domain, and range.
- I can solve radical real-world and mathematical equations.
- I can identify and explain extraneous solutions and when they occur.

● EL #7 Exponential & Logarithmic (Chapter 7)

- I can graph exponential functions using parent function, intercepts, and asymptote with or without technology.
- I can identify domain and range of exponential function graphs.

- I can identify the percent rate of change.
- I can describe the exponential function as growth or decay based on the percent rate of change.
- I can use properties of exponents to derive properties of logarithms.
- I can evaluate expressions using properties of logarithms.
- I can solve exponential equations.
- I can solve logarithmic equations.
- I can represent real-world problems using exponential and logarithmic functions.
- I can solve real-world problems using exponential and logarithmic functions.
- I can interpret real-world problems using exponential and logarithmic functions.