Foundations & Pre-Calculus Mathematics 10

**Textbook Resource:**

Pearson Foundations & Pre-calculus Math 10

**Additional Resources:**

McGraw Hill Math 10, Pearson Practice Workbook, previous Math 10 textbooks as resources as needed.

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| **Course Outline and Time Line**:**Outcomes** | **Specifics (and Indicators)** | **Activities, Labs, etc. Planned** | **Corresponding Chapter** | **Time Frame** |
| 10.1: Demonstrate understanding of factors of whole numbers.  10.5: Demonstrate understanding of the multiplication and factoring of polynomial expressions (c, p, s) | * Primes, composites * GCF * LCM * Roots (square and cube) * Prime factorization * Factors and multiples and relationships to algebra * Problems involving roots and factors | * Sieve of Eratosthenes * Squares/Cubes lab introduction * Alg Tiles Intro to common factor, trinomial factors, etc. * Tic Tac Toe method of Polynomial Expansion * Cryptography video and activity * Math Lab (page 157 textbook) * Historical Connections to Math (Viete) | Chapter 3 | February |
| 10.2: Demonstrate understanding of irrational numbers (entire and mixed radicals). | * Simplifying * Ordering * Operations with * Connections to fractions and exponents * Convert between radicals and fraction exponents * Exponent rules | * Irrational Number Line lab to introduce nit by plotting irrational numbers on a number line accurately. * Wheel of Theodorus Activity connecting math, art and history. * Mathematical Quilts (Books 1 & 2) various activities * Platonic solids (math folding activities) | Chapter 4 | 2 – 3 weeks in March |
| 10.6: Expand and apply understanding of relations and functions.  10.8: Demonstrate understanding of linear realtions.  10.7: Understanding of slope (c, p, s) wrt. Line segments & lines, rate of change, rise and run, parallel and perpendicular lines.  10.9: Demonstrate understanding of the writing of equations of linear relations given: graph, point and slope, two points, a point and a parallel or perpendicular line equation | * Data, graphs, relations and functions * Domain, range, ordered pairs, table of values, written description connected to graphs * Writing sets, set notation, mapping diagrams * Intercepts, slope, function notation, linear equations and functions | * Activity page 257 (good intro) * Motion Detector (CBL calculator lab for graphing motion) * TI graph labs (see separate resources on graphing labs) * Connections to Physics graphs * Linear Relations * History connection: The Golden Ratio and Theano * Linear equation   y = mx + b math lab for investigating the role of m (TI graphing calculators)   * Linear equation math lab for investigating relationship to parallel and perpendicular lines * Art/Math/History Connection (Agnes Martin) | Chapter 5 & 6 | Remainder in March, all of April and 1 week in May |
| 10.10: Solve problems that involve systems of linear equations in 2 variables graphically and algebraically. | * Graphing method * Substitution method * Elimination method * Fractional coefficients * Classifying linear systems | * TI connections (after pen and paper method is learned) * Babylonians and Linear Systems (History connection) | Chapter 7 | 2 weeks in May |
| 10.3: Demonstrate understanding of SI and imperial units of measurement including linear measurement, surface area, volume and relationships and conversions between measuring systems. | * Measurement labs * Surface area and volumes of spheres, right cones, cylinders, prisms and pyramids | * Paper folding activities * Measurement lab wit linear measures and solids * Math and Art connections (Mathematical Quilting and Stain Glass) | Chapter 1 | 2 weeks in May |
| 10.4: Develop and apply the primary trig ratios to solve problems that involve right triangles. | * Finding angles * Finding sides * Use ratios * Pythagorean therorem | * Trig Trainer/Geo Legs * Math Labs Trig * Math and Art Connections (Stained Glass and Math Quilts) | Chapter 2 | June (remainder of time in June for review) |

**Evaluation:**

Exams 70%

Daily Assignments/Quizzes 15%

Math Labs/Projects 15%

**Final Evaluation:**

Year’s Work 70%

Final Exam 30%