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.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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%