Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 1 Functions and Their Graphs	11-12	1st	12 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions .The student is expected to: P.1.A – describe parent functions symbolically and graphically, including y = x^n, y = ln x, y = $\log_a x$, y = $\frac{1}{x}$, y = e^x, y = a^x, etc P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.C – describe symmetry of graphs of even and odd functions P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), and the graph of a function. *The student interprets the meaning of the symbolic representations of functions and operations on functions within a context. The student is expected to:* P.2.A – apply basic transformations, including a • f(x), f(x) + d, f(x - c), f(b • x), |f(x)|, f(|x|), to the parent functions. P.2.B – perform operations including composition on functions, and find inverses. *The student uses functions and their properties to model and solve real-life problems. The student is expected to:* P.3.A – investigate identities graphically and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties P.3.B – use functions such as logarithmic, exponential, trigonometric, polynomial, etc. to model real-life data P.3.C – use regression to determine a function to model real-life data P.3.D – use properties of functions to analyze and solve problems and make predictions	✓ Student will be able to define characteristics and representations of a function. ✓ Student will be able to identify intercepts and symmetry using tables, rules of algebra, drawing and using graphs. ✓ Student will be able to use the graph of a function to determine the key elements of that function. ✓ Student will be able to identify the characteristics of the most commonly used functions in algebra. ✓ Student will be able to determine if the inverse of a function exists and how to represent it graphically and algebraically. ✓ Student will be able to write equations to model real-world data and identify different models of variation.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
<u>Student Inquiry to promote self learning:</u> 1. Rectangular Coordinates (1.1) 2. Graphs of Equations (1.2) 3. Linear Equations in Two Variables (1.3) 4. Functions (1.4) 5. Analyzing graphs of Functions(1.5) 6. A Library of Parent Functions(1.6) 7. Transformation of Functions (1.7) 8. Combinations of functions: composite Functions (1.8) 9. Inverse Functions (1.9) 10. Mathematical Modeling and Variation(1.10) Website helping students review Alg. 2 concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 1 pages 2-126 Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Cartesian plane quadrants origin distance formula Rectangular coordinate system Pythagorean theorem Midpoint formula symmetry slope-intercept form Point-slope form slope formula rate-of-change general form Linear extrapolation linear interpolation Rigid/nonrigid transformations composition functions	www.coolmath.com
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes Book Cover project	1 lesson per day

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 2 Polynomial and Rational Functions	11-12	1st	12 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions .The student is expected to: P.1.A – describe parent functions symbolically and graphically, including y = x^n, y = ln x, y = $\log_a x$, y = $\frac{1}{x}$, y = e^x, y = a^x, etc P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), and the graph of a function, P.1.E –) investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function. The student interprets the meaning of the symbolic representations of functions and operations on functions within a context. The student is expected to: P.2.B – perform operations including composition on functions, and find inverses. The student uses functions and their properties to model and solve real-life problems. The student is expected to: P.3.A – investigate identities graphically and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties P.3.B – use functions such as logarithmic, exponential, trigonometric, polynomial, etc. to model real-life data P.3.D – use properties of functions to analyze and solve problems and make predictions	✓ Student will be able to sketch graphs and write equations for parabolas. ✓ Student will be able to find all zeros of a polynomial. ✓ Student will be able to sketch the graph of rational functions. ✓ Student will be able to sketch the graphs of polynomial functions. ✓ Student will be able to perform operations with complex numbers. ✓ Student will be able to find solutions to polynomial and rational inequalities.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Student Inquiry to promote self learning: 1. Quadratic Functions and Models (2.1) Lecture using transparencies and note taking on: 11. Polynomial Functions of Higher Degree (2.2) 12. Polynomial and Synthetic Division (2.3) 13. Complex Numbers (2.4) 14. Zeros of Polynomial Functions(2.5) 15. Rational Functions(2.6) 16. Nonlinear Inequalities (2.7) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 2 pages 127 - 216 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Polynomial function quadratic function zeros leading coefficient test test intervals synthetic division remainder theorem factor theorem imaginary unit complex number complex conjugate conjugate pairs linear factorization theorem fundamental Theorem of Algebra rational zero test asymptote	www.coolmath.com http://people.hofstra.edu/Stefan_Waner/calctopic1/scaledgraph.html (Calculus applied to the real world website)
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	1 lesson per day

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 3 Exponential and Logarithmic Functions	11-12	2nd	11 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.A – describe parent functions symbolically and graphically, including $y = x^n$, $y = \ln x$, $y = \log_a x$, $y = \frac{1}{x}$, $y = e^x$, $y = a^x$, etc	Student will be able to write and graph exponential functions.
P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.E –) investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function.	Student will be able to recognize, evaluate, and graph logarithmic functions.
The student interprets the meaning of the symbolic representations of functions and operations on functions within a context. The student is expected to: P.2.C – investigate identities graphically and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties.	Student will be able to use exponents and logarithms to model a variety of situations.
The student uses functions and their properties to model and solve real-life problems. The student is expected to: P.3.B – use functions such as logarithmic, exponential, trigonometric, polynomial, etc. to model real-life data P.3.D – use properties of functions to analyze and solve problems and make predictions	Student will be able to use exponents and logarithms to model a variety of situations.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Student Activity to promote self learning: 2. Exponential Functions and their Graphs (3.1) Lecture using transparencies and note taking on: 17. Logarithmic Functions and their Graphs (3.2) 18. Properties of Logarithms (3.3) 19. Exponential and Logarithmic Equations (3.4) 20. Exponential and Logarithmic Models (3.5) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 3 pages 217 – 280 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Transcendental functions one-to-one property Compound interest formula logarithmic functions common log Natural log change-of-base formula properties of logs Extraneous solution exponential growth/decay Gaussian model logistics growth model logarithmic models Normally distributed sigmoidal curve	www.coolmath.com http://people.hofstra.edu/Stefan_Waner/calctopic1/scaledgraph.html (Calculus applied to the real world website)
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 4 Trigonometry	11-12	2nd	15 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions .The student is expected to: P.1.A –The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.C – describe symmetry of graphs of even and odd functions P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function P.1.E –) investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function. The student interprets the meaning of the symbolic representations of functions and operations on functions within a context. The student is expected to: P.2.C – investigate identities graphically and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties. *The student uses functions and their properties to model and solve real-life problems. The student is expected to:* P.3.A – investigate properties of trigonometric and polynomial functions P.3.B – use functions such as logarithmic, exponential, trigonometric, polynomial, etc. to model real-life data P.3.D – use properties of functions to analyze and solve problems and make predictions P.3.E – solve problems from physical situations using trigonometry, including the use of Law of Sines, Law of Cosines, and area formulas.	Student will be able to describe angles and angular movement. Student will be able to evaluate trigonometric functions of any angle. Student will be able to evaluate trigonometric functions by using the unit circle. Student will be able to sketch the graphs of sine and cosine functions. Student will be able to sketch the graphs of other trigonometric functions. Student will be able to evaluate and graph the inverses of trigonometric functions. Student will be able to use trigonometry to find unknown side lengths and angles in right triangles. Student will be able to use trigonometric functions to solve real-life problems.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 21. Radian and Degree Measure (4.1) 22. Trigonometric Functions: The Unit Circle (4.2) 23. Right Triangle Trigonometry (4.3) 24. Trigonometric Functions of Any Angle (4.4) 25. Graphs of Sine and Cosine Functions (4.5) 26. Graphs of Other Trigonometric Functions (4.6) 27. Inverse Trigonometric Functions (4.7) 28. Applications and Models (4.8) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 4 pages 281 – 372 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Trigonometry initial/terminal sides coterminal side radian Acute/obtuse complementary/supplementary linear speed angular speed unit circle period sine cosine tangent Cotangent secant cosecant reference angle hypotenuse Amplitude phase shift damping factor inverse Simple harmonic motion angels of depression/elevation	www.coolmath.com http://people.hofstra.edu/Stefan_Waner/calctopic1/scaledgraph.html (Calculus applied to the real world website)
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes Unit Circle game project	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 6 Additional Topics in Trigonometry	11-12	3rd	13 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function. *The student uses functions and their properties, tools and technology, to model and solve meaningful problems. The student is expected to*: P.3.A – investigate properties of trig and polynomial functions. P.3.D – use properties of functions to analyze and solve problems and make predictions P.3.E –solve problems from physical situations using trigonometry, including the use of Law of Sines, Law of Cosines, and area formulas. The student uses vectors to model physical situations. The student is expected to: P.6.A – use the concept of vectors to model situations defined by magnitude and direction P.6.B – analyze and solve vector problems generated by real-life situations.	Student will be able to use trigonometry to solve and find the areas of oblique triangles. Student will be able to represent and perform operations with vector quantities. Student will be able to write a vector as a sum of two vector components. Student will be able to represent and perform operations on complex numbers by using trigonometry.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 29. Law of Sines (6.1) 30. Law of Cosines (6.2) 31. Vectors in the Plane (6.3) 32. Vectors and Dot Products (6.4) 33. Trigonometric Form of a Complex Number (6.5) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 6 pages 429 - 494 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Oblique triangle Law of Sines Law of Cosines AAS ASA SSA SSS SAS Heron's Area Formula Vector magnitude initial point terminal point Component form standard position parallelogram law Resultant Dot product orthogonal vectors complex plane DeMoivre's Theorem *n*th root modulus argument	www.coolmath.com http://people.hofstra.edu/Stefan_Waner/calctopic1/scaledgraph.html (Calculus applied to the real world website)
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 5 Analytic Trigonometry	11-12	3rd	13 days

TEKS/Student Expectations	Examples/Specifications:
The student interprets the meaning of the symbolic representations of functions and operations of functions within a *context. The student is expected to*: P.2.C – investigate identities graphically and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties. The student uses functions and their properties to model and solve real-life problems. The student is expected to: P.3.E – solve problems from physical situations using trigonometry, including the use of Law of Sines, Law of Cosines, and area formulas.	Student will be able to rewrite trigonometric expressions in order to simplify and evaluate functions. Student will be able to solve trigonometric equations written in quadratic form or containing more than one angle. Student will be able to verify a trigonometric identity. Student will be able to simplify expressions and solve equations that contain sums or differences of angles. Student will be able to rewrite trigonometric expressions that contain functions of multiple or half-angles, or functions that involve squares or products of trigonometric expressions.
Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**

Lecture using transparencies and note taking on: 34. Using Fundamental Identities (5.1) 35. Verifying Trigonometric Identities (5.2) 36. Solving Trigonometric Equations (5.3) 37. Sum and Difference Formulas (5.4) 38. Multiple-Angle and Product-to-Sum Formula (5.5) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 5 pages 373 – 428 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Trigonometric identities conditional equation General solution quadratic type extraneous solution Sum and difference formulas cofunction identity Reduction formulas double-angel formulas Power-reducing formulas	www.coolmath.com http://people.hofstra.edu/Stefan_Waner/calctopic1/scaledgraph.html (Calculus applied to the real world website)
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 8 Matrices and Determinants	11-12	4th	15 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function. P.1.E – investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function.	Student will be able to find the determinant of a square matrix. Student will be able to use matrices to solve systems of equations. Student will be able to use matrices to solve systems of equations, find areas of triangles, and write coded messages.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 39. Matrices and Systems of Equations (8.1) 40. Operations with Matrices (8.2) 41. The Inverse of a Square Matrix (8.3) 42. The Determinant of a Square Matrix (8.4) 43. Applications of Matrices and Determinants (8.5) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 8 pages 571 - 640 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Matrix order elementary row operation row-equivalent Row-Echelon form Back-substitution Gaussian elimination Gauss-Jordan Elimination main diagonal augmented Scalar identity matrix inverse matrix nonsingular Determinant minors cofactors Cramer's Rule Collinear cryptogram uncoded	www.coolmath.com
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 7 Systems of Equations and Inequalities	11-12	4th	13 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function. P.1.E – investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function. *The student uses functions and their properties, tools and technology, to model and solve meaningful problems. The student is expected to*: P.3.C – use regression to determine a function to model real-life data	Student will be able to use elimination to solve systems of equations. Student will be able to use substitution and graphing to solve systems of equations. Student will be able to find the maximum or minimum value of a function if there are linear constraints on the values of the variables in the function.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 44. Linear and Nonlinear Systems of Equations (7.1) 45. Two-Variable Linear Systems (7.2) 46. Multi-Variable Linear Systems (7.3) 47. Partial Fractions (7.4) 48. Systems of Inequalities (7.5) 49. Linear Programming (7.6) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 7 pages 495 - 570 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
System of equations substitution method of elimination Equivalent systems equilibrium point Row-Echelon form Back-substitution Gaussian elimination nonsquare Row operation partial fraction decomposition irreducible Linear inequality consumer surplus unbound solution set	www.coolmath.com http://people.hofstra.edu/Stefan_Waner/calctopic1/scaledgraph.html (Calculus applied to the real world website)
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 9 Sequence, Series, and Probability	11-12	5th	19 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function. P.1.E – investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function. The student uses sequences and series to represent, analyze, and solve real-life problems. The student is expected to: P.4.A – represent patterns using arithmetic and geometric sequences and series P.4.B – use arithmetic, geometric, and other sequences and series to solve real-life problems P.4.D – apply sequences and series to solve problems including sums and binomial expansion	Student will be able to use mathematical induction to find and prove formulas for sums of sequences and series. Student will be able to represent a sequence of numbers or the sum of a sequence. Student will be able to find the *n*th term or partial sum of an arithmetic sequence. Student will be able to find terms and sums of geometric sequences. Student will be able to find the expansion of a binomial $(x + y)^n$.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 50. Sequences and Series (9.1) 51. Arithmetic Sequences and Partial Sums (9.2) 52. Geometric Sequences and Series (9.3) 53. Mathematical Induction (9.4) 54. The Binomial Theorem (9.5) 55. Counting Principles (9.6) 56. Probability (9.7) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 9 pages 641 - 726 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Finite sequence infinite sequence Fibonacci recursive Factorial summation notation series index upper/lower limit arithmetic sequence geometric sequence Common ratio induction binomial theorem/coefficients Pascal's Triangle permutation distinguishable permutation Combinations sample space mutually exclusive complementequ	www.coolmath.com
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 10 Topics on Analytic Geometry	11-12	5th	21 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.B – determine the domain and range of functions using graphs, tables, and symbols P.1.D – recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function. P.1.E – investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function. The student interprets the meaning of the symbolic representations of functions and operations on functions within a context. The student is expected to: P.2.C –) investigate identities graphically and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties The student uses conic sections, their properties, and parametric representations to model physical situations. The student is expected to: P.5.A – use conic sections to model motion, such as the graph of velocity vs. position of a pendulum *P.5 B – use properties of conic sections to describe physical phenomena such as the reflective properties of light and sound.*	Student will be able to find the angle of inclination of a line and the Distance between a point and a line. Student will be able to recognize each conic section and solve problems involving parabolas. Student will be able to solve problems involving ellipses. Student will be able to solve problems involving hyperbolas and classify a conic section on the basis of its general equation. Student will be able to write equations to describe the motion of a point in a plane. Student will be able to describe the position of a point in a plane using Distance and angle rather than *x*- and *y*- coordinates. Student will be able to sketch graphs of polar equations. Student will be able to represent conic sections in polar coordinates.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 57. Lines (10.1) 58. Introduction to Conics: Parabolas (10.2) 59. Ellipses (10.3) 60. Hyperbolas (10.4) 61. Rotation of Conics (10.5) 62. Parametric Equations (10.6) 63. Polar Coordinates (10.7) 64. Graphs of Polar Equations (10.8) 65. Polar Equations of Conics (10.9) *Student directed test review	Larson / Hostetler Precalculus with Limits CH 10 pages 727 - 810 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Inclination conics degenerate conic locus focus Parabola directrix focal chord latus rectum tangent Vertex axis ellipse foci major axis minor axis Eccentricity hyperbola asymptotes branches Transverse axis rotation invariants discriminant Parametric plane curve cycloid orientation of a curve Polar coordinate/axis pole coordinate-conversion formula Directed distance directed angle convex limacon Lemniscate cardioid	www.coolmath.com
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 11 Analytic Geometry in Three Dimensions	11-12	6th	11 days

TEKS/Student Expectations	Examples/Specifications:
The student uses sequences and series to represent, analyze, and solve real-life problems. The student is expected to: P.4.A – represent patterns using arithmetic and geometric sequences and series The student uses vectors to model physical situations. The student is expected to: P.6 B – analyze and solve vector problems generated by real-life situations	Student will be able to locate points, find distances, and graph equations in three dimensions. Student will be able to describe and compare lines and planes in space. Student will be able to describe, compare, and solve problems involving vectors in three dimensions. Student will be able to find orthogonal vectors, the areas of parallelograms, and the volumes of geometric solids given two or more vectors.

Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**
Lecture using transparencies and note taking on: 66. The Three-Dimensional Coordinate System (11.1) 67. Vectors in Space (11.2) 68. The Cross Product of Two Vectors(11.3) 69. Lines and Planes in Space (11.4) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 11 pages 811 - 850 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
xy-plan *xz*-plane *yz*-plane octants distance formula sphere surface in space trace zero vector magnitude component form unit vector scalar dot product parallel vectors orthogonal cross product triple scalar product symmetric/parametric equations direction vector direction numbers	www.coolmath.com
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.

Scope and Sequence 2007/'08

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Pre Calculus *Chapter 12 Limits and an Introduction to Calculus	11-12	6th	13 days

TEKS/Student Expectations	Examples/Specifications:
The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to: P.1.D –) recognize and use connections among significant points of a function (roots, maximum points, and minimum points), the graph of a function, and the symbolic representation of a function P.1.E – investigate continuity, end behavior, vertical and horizontal asymptotes, and limits and connect these characteristics to the graph of a function.	Student will be able to find the slope of a graph at any single point. Student will be able to find and interpret the limit of a function for a certain value of *x*. Student will be able to evaluate limits that cannot be solved through use of direct substitution.
The student uses sequences and series to represent, analyze, and solve real-life problems. The student is expected to: P.4.C – describe limits of sequences and apply their properties to investigate convergent and divergent series	Student will be able to find the limits of functions at infinity and the limits of sequences. Student will be able to approximate and find exact areas of plane regions defined by functions.
Process of Instruction/Products:	**Instructional Resources/Textbook Correlations:**

Lecture using transparencies and note taking on: 70. Introduction to Limits (12.1) 71. Techniques for Evaluating Limits (12.2) 72. The Tangent Line Problem (12.3) 73. Limits at Infinity and Limits of Sequences (12.4) 74. The Area Problem (12.5) Website(s) helping students learn and review concepts Student directed test review	Larson / Hostetler Precalculus with Limits CH 12 pages 851 - 909 *Warm ups
Language of Instruction	**Weblinks/Other Resources:**
Limit oscillating behavior direct substitution unbound behavior dividing-out technique indeterminate form one-sided limit difference quotient rationalizing technique calculus tangent line derivative limit at infinity converge diverge summation	www.coolmath.com
Evaluation/External Assessment/Local Assessment:	**Best Instruction Timeline:**
Daily Homework In-class work End of Unit Test 2-5 Quizzes	See separate time line.