Integrated Math 11*
Course Outline

(Special Education Replacement Class)

- 5 Credits
- Updated March 2008/Revised January 2009
- Prerequisites: Integrated Math 10 or its equivalent.
- Integrated Math 11* parallels the General Education Integrated Math 3 course.
- Integrated Math 11 is the third year of our practical level program. The skills developed in Integrated Math 9 and 10 will be extended and students will be expected to apply them to more complex situations. New skills in the content clusters on the HSPA will also be introduced. The areas emphasized are number senses, concepts and applications, spatial sense and geometry, data analysis, probability, statistics, discrete mathematics, patterns, functions, algebra, and trigonometry. The course is also coordinated with the Core Content Curriculum Standards. Mathematical reasoning and problem solving are emphasized throughout the course.
- The curriculum and course objectives are followed; however, the student's Individualized Education Plan dictates any accommodations or instructional strategies utilized. (These are included below within the outline.)
- Students will be using a wide array of materials including teacher made worksheets, teacher made assessments, texts including, but not limited to *AGS Algebra, AGS Pre Algebra*, and *AGS Geometry* printed by American Guidance Service, Inc. as well as other materials deemed necessary by the instructor.
- Incorporated into the curriculum will be the use of newspapers, magazines, the Internet, graphs, word processing, Study Island, Smart Technology, as well as other technology deemed necessary by the instructor.
- Students will be evaluated based upon quizzes, tests, examinations, homework, class participation, projects, as well as other assessment techniques.
- High Point Regional High School's curriculum and instruction are aligned to the state's Core Curriculum Content Standards and address the elimination of discrimination by narrowing the achievement gap, by providing equity in the educational programs and be providing opportunities for students to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability, or socio-economical status.

ACADEMIC AND/OR FUNCTIONAL AREA:

Integrated Math 11

ANNUAL MEASURABLE ACADEMIC AND/OR FUNCTIONAL GOAL: **(Academic goals should be related to the Core Curriculum Content Standards through the general education curriculum unless otherwise required according to the student's educational needs. Preschool academic goals should be related to the Preschool Teaching & Learning Expectations: Standards of Quality.)**

1. Standard 4.3 B (Patterns and Algebra): All students will represent and analyze relationships among variable quantities and solve problems involving patterns, functions, and algebraic concepts and processes. **90 10 00 GOAL**

2. Standard 4.2B (Geometry and Measurement): All students will develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena. **90 05 00 Goal**

3. Standard 4.1 A: (Number and numerical operations) All students will develop number sense and will perform standard numerical operations and estimations on all types of numbers in a variety of ways. **90 01 00 Goal**

4. Standard 4.5: All students will regularly and routinely use calculators, computers, manipulatives, and other mathematical tools to enhance mathematical thinking, understanding, and power. **90 92 00 GOAL**

5. Standard 4.5 D (Mathematical Processes, Reasoning): All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. **90 20 00 GOAL**

BENCHMARKS OR SHORT TERM OBJECTIVES: Related to meeting the student's needs that result from the student's disability to enable the student to be involved in and progress in the general education curriculum and meeting the student's other educational needs [N.J.A.C. 6A:14-3.7(e)3].	CRITERIA	EVALUATION PROCEDURES: State how the student's progress toward the annual goal will be measured [N.J.A.C. 6A:14-3.7(e)15].	PROGRESS			
			1	**2**	**3**	**4**
1a) 90 10 05 OBJ: Graph points satisfying a function from T-charts, from verbal rules and from simple equations.	80 % Accuracy	Assessments Observations Projects				
1b) 90 10 07 OBJ: Graph functions, and understand and describe their general behavior (equations with two variables).	80 % Accuracy	Assessments Observations Projects				
2a) 90 05 06 OBJ: Describe and use geometric transformations.	80 % Accuracy	Assessments Observations Projects				
2b) 90 05 14 OBJ: Use iterative procedures to generate geometric patterns.	80 % Accuracy	Assessments Observations Projects				

Objective	Criteria	Methods				
3a) **90 01 39 OBJ:** Extend understanding of the number system by constructing meanings for the following: rational numbers, percents, exponents, roots, absolute values, numbers represented in scientific notation.	80 % Accuracy	Assessments Observations Projects				
3b) **90 01 42 OBJ**: Compare and order numbers of all named types.	90 % Accuracy	Assessments Observations Projects				
3c) **90 01 47 OBJ:** Compare and order rational and irrational numbers.	80 % Accuracy	Assessments Observations Projects				
4a) **90 92 01 OBJ:** Use a variety of tools to measure objects or events in real life situations.	90 % Accuracy	Assessments Observations Projects				
4b) **90 92 02 OBJ:** Use calculators, manipulatives, computers, and other tools to solve math problems in real life situations.	90 % Accuracy	Assessments Observations Projects				
4c) **90 92 03 OBJ:** Use a calculator to perform a variety of functions.	90 % Accuracy	Assessments Observations Projects				
5a) **90 20 40 OBJ:** Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their solutions.	80 % Accuracy	Assessments Observations Projects				
5b) **90 20 44 OBJ:** Use reasoning to support their mathematical conclusions and problem solutions.	80 % Accuracy	Assessments Observations Projects				
COMMENT:						

Progress Key: I – Introduced   R – Re-Introduced   LP – Limited Progress   P – Progressing   M - Mastered   N – Not Introduced

Integrated Math 11
Course Outline (Including New Jersey Core Curriculum Content Standards)

Unit 1: Tools for Algebra and Geometry and Exploring Integers
- Goal: To understand tools for Algebra and Geometry and exploring integers.
- Objectives:
    1. Simplify and evaluate expressions using order of operations, and substituting numbers for variables. (4.1 B) (4.3 D)
    2. Simplify expressions involving absolute values. (4.1B)(4.3D)
    3. Identify place value of units (4.1 A,B)
    4. Express terminating and repeating decimals as fractions, and fractions as decimals. (4.1 A,B)

Unit 2: One-Step Equations and Inequalities
- Goal: To solve one-step equations and inequalities.
- Objectives:
    1. Solve one-step equations and inequalities.(4.3 C)
    2. Solve equations and inequalities with fractions, decimals.(4.3 C)
    3. Translate sentences to equations and inequalities. (4.3 C,D)
    4. Use elimination as a problem solving strategy. (4.5 A,D,E)
    5. Draw a diagram as a problem solving strategy. (4.5 A,D,E)
    6. Use formulas to solve problems. (4.2 E) (4.3 C)

Unit 3: Equations and Inequalities
- Goal: To solve equations and inequalities.
- Objectives:
    1. Solve problems by working backwards. (4.5 A,D,E)
    2. Solve two-step equations. (4.3 C,D)
    3. Write two-step equations, when given a sentence. (4.3 C,D)
    4. Write and solve equations involving circles, circumferences, diameters, and radii. (4.2 E) (4.3 C,D)
    5. Solve equations, inequalities by combining like terms. (4.3C,D)
    6. Solve equations with variables on both sides.(4.3 C,D)

Unit 4: Patterns and Exponents
- Goal: To understand patterns and exponents.
- Objectives:
    1. Recognize and continue arithmetic, geometric series. (4.3 A)
    2. Analyze patterns produced by processes of geometric and arithmetic change, using iterations and fractals. (4.3 A,C)
    3. Use inductive and deductive reasoning to solve problems. (4.3 A)
    4. Use exponents (positive and negative) to expand, simplify, or evaluate an expression. (4.1 A,B) (4.3 A,D)
    5. Change numbers from standard form to scientific notation and vice-versa. (4.1 A,B) (4.5 C)
    6. Compute numbers in scientific notation (4.1 A,B) (4.5 C)

Unit 5: Monomials and Polynomials
- Goal: To understand Monomials and Polynomials.
- Objectives:
    1. Classify, state the degree of, and evaluate polynomials. (4.3 D)
    2. Add and subtract monomials. (4.3 D)
    3. Multiply and divide monomials. (4.3 D)
    4. Add polynomials. (4.3 D)
    5. Subtract polynomials. (4.3 D)
    6. Calculate the powers of polynomials. (4.3 D)
    7. Multiply a polynomial by a monomial. (4.3 D)
    8. Multiply binomials. (4.3 D)
    9. Factoring a monomial out of a polynomial. (4.3 D)

Unit 6: Functions, Graphing Functions, and Systems of Equations
- Goal: To understand functions, graphing functions, and systems of equations.
- Objectives:
    1. Name or graph given points on a coordinate graph. (4.3 B)
    2. Identify the domain and range given in a relation and state whether or not the relation is a function. (4.3 B)
    3. Graph linear relationships. (4.3 B,D)
    4. Solve a function for a given domain. (4.3 B)
    5. Solve problems by drawing graphs. (4.3 B,C)
    6. Determine the slope of a line. (4.3 B)
    7. Graph absolute value functions. (4.3 B,D)
    8. Graph two equations to determine the point of intersection. (4.3 B)
    9. Determine if two lines intersect in one point, no points or all points. (4.3 B)
    10. Combine and interpret matrices. (4.1 B)

Unit 7: Ratios, Proportions, Percent, and Probability
- Goal: To understand ratios, proportions, percents, probability, and statistics.
- Objectives:
    1. Express ratios in simplest form (4.1 A,B,C)
    2. Solve a problem by making a table. (4.5 A)
    3. Solve proportions, including the use of percent and apply to real life problems. (4.1 A)
    4. Find simple probabilities. (4.4 B)
    5. Identify and use the counting principle with or without a tree diagram. (4.4 B,C)
    6. Find the odds of an outcome. (4.4 B)
    7. Identify and calculate the probability of independent and dependent events. (4.4 B,C)

Unit 8: Statistics and Percents
- Goal: To understand statistics and percents.
- Objectives:
    1. Gather, record, and interpret data. (4.4 A)
    2. Use various methods to display data including frequency tables, bar graphs, and box and whiskers plots. (4.4 A)
    3. Construct and analyze scatter plots. (4.4 A)
    4. Use statistics to make predictions. (4.4 A)
    5. Recognize when statistical information is misleading. (4.4 A)
    6. Perform operations with fractions, decimals, percents, and estimating with percents. (4.1 A, B, C)
    7. Use percent equations to solve real life problems. (4.1 A, B)
    8. Describe the normal curve in general terms and use its properties to understand their applications to real world situations. (4.4 A)
    9. Demonstrate an understanding of basic geometric terms. (4.2 A)

Unit 9: Square Roots, Right Triangles, and Trigonometry
- Goal: To understand square roots, right triangles and trigonometry.
- Objectives:
    1. Calculate square roots. (4.1 B)
    2. Use the Pythagorean Theorem to solve problems. (4.2 A,E)
    3. Calculate the sine, cosine, and tangent rations, and use them to solve problems. (4.2 E)
    4. Trigonometry word problems (4.2 E) (4.5 A)

Unit 10: Basic Math Concepts
- Goal: To understand basic math concepts.
- Objectives:
    1. Number sense, concepts, and applications. (4.1 A)
    2. Spatial sense and geometry. 4(.2)
    3. Data analysis, probability, statistics, and discrete math.(4.4 A,C,D)
    4. Patterns, functions and algebra. (4.3 A, B, C, D)

- Note: Many of the goals and objectives are part of the Mathematical Processes standard which includes:
    - A. Problem Solving
    - B. Communication
    - C. Connections
    - D. Reasoning
    - E. Representations
    - F. Technology