

## Course Proficiency Outline

### **PACE – Pre-Achieving content Excellence - 2345 Mathematics Grades 9/10**

#### **Purpose:**

This half-year course is designed to prepare the freshman/sophomore students to attain proficiency when taking the HSPA, a requirement for graduation. The course will cover five clusters assessed on the HSPA. The students' previous scores on the NJASK, PSAT, and other teacher assessment and input will determine placement along with emphasis on each cluster. The purpose of this class is to develop the students' mathematical processes in the five cluster areas of Numerical Operations, Geometry and Measurement, Patterns and Functions, Data Analysis / Probability, and Fundamentals of Algebra.

The course will provide work on test-taking strategies to enhance the students' ability to improve their mathematical reasoning, calculator use, and mathematical communications.

#### **1. STUDENT OUTCOMES 4.1, 4.2, 4.3, 4.4, 4.5.**

- A. The student will demonstrate their understanding of the clusters by solving problems through the use of open-ended problems with multiple solutions.
- B. The student will demonstrate an understanding of the clusters by using communication (reading and writing, discussion, listening, and questioning) to organize and clarify their mathematical thinking.
- C. The student will demonstrate an understanding of the clusters by communicating their mathematical thinking clearly to peers, teachers, and others orally and in writing.
- D. The student will demonstrate their understanding of the clusters by supporting their mathematical conclusions and problem-solving with various types of reasoning and methods of proof.
- E. The student will demonstrate an understanding of the clusters by creating and using representations (diagrams, charts, tables, and graphs) to organize records and communicate their mathematical ideas and proofs.
- F. The student will demonstrate an understanding of the clusters by using technology (calculators, spreadsheets, and software) to gather, analyze, and communicate their mathematical reasoning.
- G. The student will demonstrate an understanding of the clusters by applying mathematics in practical situations and other disciplines. They will recognize recurring themes (patterns in numerical sequences, algebra, and geometry).

#### **2. CONTENT AND SKILLS 4.1, 4.2, 4.3, 4.4, 4.5**

- A. Numerical Operation
  1. Use of decimals, fractions, proportions, percent, and other number skills to solve problems in practical situations.
  2. Use of numerical operations skills to solve problems applicable to the other cluster areas (using decimals and percents to solve probability problems).
- B. Geometry and Measurement
  1. Use of geometric properties, transforming shapes, coordinate geometry and techniques of indirect measurement to represent and solve problems.
- C. Patterns and Algebra
  1. Use of models and algebraic formulas to represent and analyze sequences and series.
  2. Use functions to model real-world phenomena and solve problems that involve varying quantities.
- D. Data Analysis and Probability
  1. Use of surveys and sampling techniques to generate data and draw conclusions.
  2. Calculate and determine the theoretical and experimental probability of complex situations.

### **3. TEXT AND MATERIALS**

- A. A diversified list of math test preparation products will be implemented.
- B. Technology will be used as mathematical problem-solving tools.
- C. Notebooks, pencils, pens, etc.
- D. A variety of tasks, open-ended and objective questions selected from an array of texts.

### **4. EVALUATION**

- A. The student will be expected to complete class work, homework, notebooks, and take tests and quizzes as administered by the classroom teachers.
- B. The student will be expected to demonstrate an acceptable level of proficiency in the objectives and content of the course in accordance to the state's mathematical scoring rubric and the NJCCCS.
- C. The student will be expected to demonstrate at all times appropriate classroom behavior such as self-control, respect for others, respect for property, and a mature attitude.
- D. The student will be expected to adhere to the district regulations concerning attire and behavior.
- E. The final grade for the course represents the teachers' professional judgment of student performance in all of the aforementioned activities and expectations.
- F. Students who do not demonstrate proficiency in mathematics in the PACE 10 program will be placed in the full year grade 11 ACE program.

**\*STUDENT MUST COMPLETE ALL COURSE REQUIREMENTS IN ORDER TO EARN 2.5 CREDITS**

**TEACHERS IN THE MATH DEPARTMENT WILL INCLUDE OPPORTUNITIES WHEREIN STUDENTS WILL REINFORCE WRITING SKILLS THROUGH HOMEWORK ASSIGNMENTS, CLASS WORK ACTIVITIES, AND SPECIAL PROJECTS.**

Reviewed and Revised August 2008  
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