Mathematics Summer Curriculum Projects

Rye City School District

November 26, 2013

Summer 2013 Curriculum Projects

- Accelerated 8th Grade Algebra (John Aguilar)
- High School Algebra 1 (Aaron Marsh)
- Pre-Advanced Placement Calculus (John Murolo and Aaron Marsh)
- Geometry Honors (Aaron Marsh)

How these projects were selected

- The Algebra projects needed to be completed due to the implementation of the Common Core Learning Standards in Algebra I for the 2013-2014 school year.
- The Geometry H and Pre-AP Calculus projects were selected by teachers.

Accelerated Eighth Grade Algebra I

- This course has been under transition.
  - 2011-2012: Both eighth grade and Algebra I were aligned to the 2005 standards.
  - 2012-2013: Eighth grade was aligned to the CCLS, but Algebra I was aligned to the 2005 standards.
  - 2013-2014: Both eighth grade and Algebra I are aligned to the CCLS.
- Changes are for alignment to CCLS, though we do more than CCLS since we have Algebra in 8th grade.

Key Changes

- Transformations of functions
  - Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs.
- Complete the square in a quadratic expression
- Derive the quadratic formula
- Piece-wise defined functions
- Sequences
- Inverse functions

High School Algebra I

- Alignment to CCLS, plus retention of topics we find important
- Notes regarding certain topics for 2013-2014 only
  - This year, students may take both the old and the new Regents. After this year, only the CCLS aligned Regents exam will exist.

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Geometry Honors

- Changes include incorporation of the CCLS for Geometry (one year prior to full implementation)
- It is important to note that we have always done more in Geometry than the State Standards – we incorporate much more Algebra than required

Key Changes

- Completing the Square and Quadratic Formula (Derivation)
- Graphing Conics (completing the square to find general equation)
  - Parabola
  - Circles
  - Hyperbola
  - Ellipse
- Building Trigonometry trough similarity (CCLS)
- Derivation of the laws of sines and cosines (use constructions)

Pre-AP Calculus

- Updated to include some CCLS and some more calculus based questions (such as sketching functions from their derivatives).

- Updated to include some SAT II Level 2 topics (such as parametric equations).

Key Changes

- Absolute value inequalities
- Curve Sketching (1st Deriv. test and Concavity)
- Parametric Equations
- Standards mapped to Common Core
- Not all content is able to be mapped to the Common Core, since this course goes beyond the common core
  - Unit 10: Derivatives and Derivative Applications