Course Title: Foundations for Algebra **Board Approval Date:** June 2012
Credit / Hours: MS Course

Course Description:

Foundations for Algebra is a one-year course that focuses on preparing students to take *Algebra 1* the following year. It is aligned to the eighth grade Pennsylvania Assessment Anchors and applicable Algebra Standards. The content of *Foundations for Algebra* is organized around the essential skills needed to be successful in *Algebra 1*. A focus on mathematical vocabulary and modeling of concepts will help students develop computational, procedural, and problem solving skills needed to study Algebra.

Students will study the sets of both rational and irrational numbers, properties of rational numbers, and computation with rational numbers, applied to both numerical expressions and algebraic expressions. Students will solve one-variable equations and inequalities and represent inequalities graphically. More advanced topics such as exponents, square roots, and two-variable linear equations will be studied in the second half of the year.

In addition to the Algebra content, *Foundations for Algebra* includes lessons on proportional reasoning, percents, probability and data analysis, as well as numerous examples and exercises in geometry. These topics often have connections to the algebra content listed above and appear on standardized tests.

Learning Activities:

- Bell Ringers
- Direct Instruction
- Collaborative/cooperative activities
- Guided/distributed practice
- Independent practice
- Exploration/modeling activities
- Graphic organizers
- Previewing
- Vocabulary in context
- Summarizing
- Various extended thinking strategies
- Computer/technology-related instruction

Modes of Assessment:

- PSSA
- 4Sight Assessments
- QCBA
- Diagnostic assessments
- Unit tests
- Quizzes
- Portfolios
- Assignments/assigned tasks
- Checklists/teacher observation
- Rubrics

Instructional Resources

Algebra Readiness (McDougal Littell, 2008) and related resources
Accelerated Math (Renaissance Place web-based software, 2010 Renaissance Learning, Inc.)
Algebra with Pizzazz! (Creative Publications, 1996)
Punchline Algebra – Books A & B (Creative Publications, 2006)
Punchline: Bridge to Algebra (Creative Publications, 2002)
Buckle Down PSSA Mathematics – 7 & 8 (Buckle Down Publishing, 2008)
Measuring Up for the Pennsylvania Academic Standards – Level G & H (Peoples Education, 2008)
Better Test Scores for the PSSA – Grade 7 & 8 (Perfection Learning)
Glencoe Pre-Algebra (Glencoe Div. of Macmillan/McGraw-Hill, 1999) and related resources
Various teacher-constructed materials and activities

Course Pacing Guide

Course: Foundations for Algebra

Course Unit (Topic)	**Length of Instruction (Days/Periods)**
1. Expressions, Unit Analysis and Problem Solving	12 Days
2. Fractions	10 Days
3. Decimals and Percents	10 Days
4. Integers	10 Days
5. Rational Numbers and Properties	10 Days
6. Solve Equations in 1-Variable	10 Days
7. Ratios, Proportions and Percents	10 Days
8. Solve and Graph Inequalities in 1-Variable	8 Days
9. Exponents	8 Days
10. Square Roots and Pythagorean Theorem	8 Days
11. PSSA Prep (Geometry, Probability and Data Analysis Connections)	18 Days
12. Linear Equations in 2-Variables	20 Days
13. Systems of Equations and Inequalities	8 Days
14. Solve Absolute Value Equations and Inequalities	8 Days