**WARREN COUNTY SCHOOL DISTRICT**

**Planned Instruction**

**Course Title**: ~~Algebra I – Grade 8~~ Honors Algebra I

**Course Number**: ~~00202~~

## COURSE DESCRIPTION

Honors Algebra I is a course designed for those students able to complete calculus prior to entering college. Changes in our society and technology require a strong background in basic algebra skills. Therefore, algebra concepts are an integral part of all secondary mathematics courses. This course provides an intense study of algebraic theory that will be expanded in Algebra II Honors, Geometry Honors, and additional advanced math courses. It uses practical problems to apply the theory and connect algebra to the real world. Honors Algebra I is intended for college-bound students who have an aptitude or interest in mathematics. It provides them with the opportunity to complete an additional year of advanced mathematics.

**Suggested Educational Level(s)**: 8th Grade

**Suggested Periods Per Week**: 5 **Length of Period**: 40 minutes

**Suggested Length Of Course**: 180 days

**Units of Credit (If Appropriate)**: 1

**Date Written**: February 2, 2000 **Date Approved**: June 26, 2000 Revision Approved 8/8/11

**Date Reviewed**: **Implementation** **Year**: 2000/2001

**Teacher Certification Required**: BS/BA: Secondary Education/Mathematics

**Standards Addressed (code)**: 2.1.11 2.5.11

2.2.11 2.8.11

2.3.11 2.9.11

2.4.11

All 8th Grade Standards met in 7th Grade Advanced.

**Relationship to Other Planned Instruction**: Working towards 11th Grade.

**Prerequisites**: 7th Grade Advanced (to meet standards)

**Special Requirements**: Equipment: Scientific Calculators

Graphing Calculators

Computers

Academics: See Attachment A

**Writing Team Members**: Debbie Hasselman

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**Standards addressed (code and description)**:

2.1.11 Numbers, Number Systems and Number Relationships

2.2.11 Computation and Estimation

2.3.11 Measurement and Estimation

2.4.11 Mathematical Reasoning and Connections

2.5.11 Mathematical Problem Solving and Communication

2.8.11 Algebra and Functions

2.9.11 Geometry

**Outline of Content Sequence and Recommended Time (weeks or days):**

15 days I. Numbers and Variables

20 days II. Working with Rational Numbers

36 days III. Solving Equations, Inequalities and Problem Solving

19 days IV. Graphs and Functions

17 days V. Solve Systems or Equations

40 days VI. Polynomials and Factoring

16 days VII. Rational Expressions

17 days VIII. Rational Expressions in Open Sentences

180 days

**Specific Educational Objectives to be Taught:**

The students will be able to

I. Numbers and Variables

* Use the real numbers to
* graph as points on a number line (2.1.11 A)
* specify and graph sets of real numbers (2.1.11 A)
* Numerical and variable expressions
* simplify (order of operations) (2.1.11 A)
* evaluate (2.1.11 A)
* simplify and evaluate expressions that contain exponents (2.1.11 A)
* Equations, inequalities and problem solving
* solve one- and two-step (2.5.11 A & C)
* translate expressions and sentences (2.2.11 A)

II. Work with Rational Numbers

* Use properties and absolute value to simplify expressions (2.1.11 A)
* Use basic operations of rational numbers to simplify expressions (2.1.11 A)

III. Solve Equations, Inequalities and Problem Solving

* Solve linear equations and inequalities (2.4.11 A, 2.5.11 A & C, 2.8.11 N)
* Solve problems using linear equations and inequalities (2.2.11 A & B, 2.9.11 I)
* Evaluate formulas (2.3.11 C)

IV. Graphs and Functions

* Graph ordered pairs of numbers on the coordinate plane and to find coordinates of any point (2.2v F & K)
* Identify and graph the domain and range of relations and functions (2.8.11 O)
* Graph linear equations and inequalities in two variables (2.2.11 F, 2.8.11 E, J, K & Q)
* Find the slope of a line (2.8.11 E & K)
* Use slope--intercept form of a linear equation (2.8.11 E & K)
* Graph using slope--intercept form (2.2.11 F, 2.8.11 E & K)
* Determine equation of a line (2.8.11 E & L)

V. Solve Systems of Equations

* Use graphs to solve systems of equations (2.2.11 F, 2.5.11 A & C, 2.8.11 F, G. H & N)
* Use linear combination to solve a system (2.5.11 A & C, 2.8.11 F, G & H)
* Use substitution to solve a system (2.5.11 A & C, 2.8.11 F, G & H)
* Problem solve
* demonstrate wind/current/general number/digit situations (2.2.11 A, 2.5.11 A, B & C, 2.8.11 H)

VI. Polynomials and Factoring

* +, −, × polynomials (2.8.11 S & T, 2.1.11 A)
* Factor (2.8.11 S & T)
* monomials
* specials
* quadratics
* grouping
* Solve quadratic equations and word problems (2.2.11 A, 2.5.11 A, B & D, 2.8.11 N, 2.9.11 C)

VIII. Rational Expressions

* Divide polynomials (2.5.11 A & C)
* Simplify rational expressions
* Simplify +, −, ×, ÷ of rational expressions (2.5.11 A & C)
* Simplify complex fractions (2.5.11 A & C)

VIII. Rational Expressions in Open Sentences

* Solve open sentences involving percents (2.5.11 C)
* Solve rational equations and problems that contain (2.5v A, C, & D, 2.8.11 N)
* fractional equations
* number problems
* work problems
* motion problems

**Formative Assessments (optional):** Orleans-Hanna

**Summative Assessments:**

See attached sample.

**Two or More Sample Units (optional):**

# WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? \_\_\_\_ Yes **X** No

2. Does this course issue a mark/grade for the report card? **X** Yes\_\_\_\_ No

3. Does this course issue a Pass/Fail mark? \_\_\_\_ Yes **X** No

1. Is the course mark/grade part of the GPA calculation? \_\_**X**\_\_ Yes \_\_No

5. Is the course eligible for Honor Roll calculation? **X** Yes \_\_\_\_ No

1. What is the academic weight of the course?

\_\_\_No weight/Non credit \_\_**X**\_\_ Standard weight

\_\_\_\_ Enhanced weight (Describe)\_\_\_\_\_\_\_\_\_\_\_\_\_

**ATTACHMENT A**

**Special Requirements--Academic**

Orleans-Hanna 10 pts

Iowa Basic 10 pts

Basic Math 10 pts

Grades \* 12 pts

Teacher Recommendation \*\* 8 pts

Total 50 pts

**40-50 points needed for Algebra I**

\* Grades

First through Third marking periods: Above 93% 4 pts

Above 84% 3 pts

Above 70% 2 pts

Example: 94% 88% 98%

4 + 3 + 4 = 11 pts

\*\* Teacher Recommendation

Recommend strongly 8 pts

Recommend 4 pts

Do not recommend 0 pts