

Please review this letter, syllabus, and course information, **and then provide your signature at the bottom of this page**, and return **this page only** to the teacher as soon as possible--this will indicate to me that you have seen my expectations for the class. Thank you.

September, 2013

Dear Parent/Guardian:

Your child is enrolled in Algebra I for this school year at Lake Shore High School. Successful completion of this course is critical to his or her future. Currently, algebra and some geometry are required for *75% of all jobs*, with the most desirable jobs requiring even more mathematics. All students can succeed in Algebra; however, this success requires considerable effort and support. To support students' mathematics learning, all Algebra I classes are using the **Carnegie Learning** mathematics program, a computer assisted program using a cognitive tutor software program designed to help students learn and understand mathematics.

An important aspect of the Carnegie Learning program is encouraging students to support each other and to work together as they learn mathematics. Students are much more successful in mathematics when they study with other students than when they work alone. As a result, students will spend time in class working in groups. I encourage them to work with other students outside of class by participating in homework study groups and telephone networks. (It is important to remember that working together and copying another student's work are very different things.)

Your child's textbook is provided in loose-leaf form; therefore, your child will need to purchase a binder in which to keep his/her text. I suggest a 1" binder. In class, students will be able to use rulers and calculators provided by the school and you may choose to purchase these items for your child for use outside of class, though the purchase is not required. If you do wish to purchase a calculator, our math department currently recommends the Texas Instruments TI-84 Plus Silver Edition (a graphing calculator).

I need your support. Specifically, I would like you to encourage your child to attend class *everyday* and to be on time for class. Show interest in your child's mathematics work by asking what he/she did in class daily. Encourage him/her to work hard daily. Check his/her progress by accessing the Powerschool Parent Portal and ask to see homework assignments and his/her Cognitive Tutor Progress Chart. *The only way for a student to succeed in mathematics is by attending class and by working hard everyday.*

Thank you for your cooperation. If you have any further questions or feel the need to talk to me, please do not hesitate to call me at the high school or to send me an e-mail. By working together, we can help your child have a successful year in Algebra I.

Sincerely,

Mr. Coffey	<a href="mailto:mcoffey@lsps.org">mcoffey@lsps.org</a>	586-285-8970
Mrs. Roda	<a href="mailto:jroda@lsps.org">jroda@lsps.org</a>	586-285-8961
Mr. Stevens	<a href="mailto:tstevens@lsps.org">tstevens@lsps.org</a>	586-285-8957

Student Name (please print): \_\_\_\_\_ Hour: \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_

## ALGEBRA I GRADING SCALE

### **CLASSROOM (4-5 days a week) 70%**

- Classwork (participation, warm-ups, presentations, group work) 25%
- Homework 20%
- Quizzes/Tests 25%

### **COMPUTER LAB (1-2 days a week) 30%**

- Sections Completed 15%  
(30 sections completed per term, extra credit opportunity)
- Time worked on computer 5%  
(12 hours per term, extra credit opportunity)
- Lab Quizzes 10%

## SUPPLIES

- a 1" 3-ring binder with dividers (bring to class EVERY DAY)
- Pencil (bring one to class EVERY DAY)
- Graphing Calculator (will be provided during class)
- Ruler (will be provided during class)

**Carnegie Learning**  
**ALGEBRA I**  
Syllabus

**DESCRIPTION OF THE COURSE**

Carnegie Learning has an exciting and interesting new approach to learning and teaching algebra. Since this course is crucial for most jobs and further study in many different disciplines, we are taking a different approach so that all students will be able to find success in mathematics. Some aspects include cooperative and collaborative learning, mathematical modeling, learning to use graphing calculators, a cognitive tutor software program, writing, student presentations, and performance assessments.

**STUDENT OUTCOMES**

Chapter 1 Objectives

- Predict the next term in a sequence of objects or numbers.
- Identify the pattern of a sequence.
- Evaluate and write  $a_n$  sequence patterns.
- Write products as powers and powers as products.
- Evaluate expressions using the order of operations.
- Identify variable quantities from a problem situation.
- Write and compare different representations (sentences, tables, equations, graphs) to model problem situations.
- Determine values for a variable from a graph.
- Determine whether a given value is a solution to an equation.
- Write the equation of a line from a given situation.
- Create tables, bar graphs and line graphs from a given situation.
- Graph the equation of a line from a table of values.
- Compare and analyze linear situations algebraically and graphically.

Chapter 3 Objectives

- Write and solve one-step equations.
- Write and solve two-step equations.
- Check solutions for equations algebraically.
- Check solutions for equations by interpreting a graph.
- Write and solve percent equations.
- Graph ordered pairs on the coordinate plane.
- Model a problem situation by writing a two-step equation, making a table and creating a graph.
- Solve for the dependent and independent variables in a two-step equation.
- Estimate values by interpreting a graph.

#### Chapter 4 Objectives

- Write simple and compound inequalities.
- Solve and graph inequalities in one variable.
- Evaluate functions, write function notation, identify domain and range of a function.
- Use the distributive property to solve equations.
- Recognize the number sets and their properties.
- Combine like terms in an equation.
- Solve equations with variables on both sides of equal sign.
- Evaluate absolute values.
- Solve and graph absolute value equations.
- Solve and graph absolute value inequalities.

#### Chapter 5 Objectives

- Write linear functions given a slope and y-intercept.
- Create tables and graphs of linear functions.
- Interpret the meaning of the x- and y-intercepts for a given problem situation.
- Locate intercepts from a graph.
- Find intercepts algebraically.
- Calculate and understand the meaning of unit rates.
- Calculate the slope of a line through two points.
- Compare slopes and y-intercepts of lines.
- Identify slopes and y-intercepts from equations.
- Write the equation of lines in slope-intercept form.
- Graph a line given the slope-intercept equation.
- Write a linear equation given a point and the slope.
- Transform a point-slope equation into slope-intercept.
- Write a slope-intercept equation given two points.
- Write and graph piecewise functions.
- Write linear equations in standard form.
- Transform slope-intercept and point-slope equations into standard form.
- Calculate simple interest.
- Solve literal equations for a given variable.

#### Chapter 6 Objectives

- Graph and analyze a scatterplot.
- Identify correlation patterns in scatterplots.
- Draw and analyze lines of best fit.
- Estimate and interpret correlation coefficients of lines of best fit.
- Use a graphing calculator to determine a correlation coefficient.
- Use a graphing calculator to determine the equation of the line of best fit.
- Use lines of best fit to make predictions.

### Chapter 7 Objectives

- Compare and analyze cost and income equations graphically and algebraically.
- Find and analyze a break-even point graphically.
- Solve a linear system by graphing.
- Determine the number of solutions to a linear system.
- Solve a linear system using substitution.
- Solve a linear system using linear combination.
- Write an inequality with two variables to model a problem situation.
- Graph an inequality with two variables.
- Graph a system of inequalities on the coordinate plane and identify the solution area.

### Chapter 8 Objectives

- Graph quadratic functions.
- Identify coefficients in quadratic functions.
- Evaluate quadratic functions.
- Identify the domain and range of a quadratic function.
- Find the line of symmetry of a parabola.
- Find the vertex of a parabola.
- Identify the vertex as the maximum or minimum value.
- Solve quadratic functions using factored equations.
- Interpret solutions to a quadratic as x-intercepts.
- Identify the number of solutions to a quadratic equation using the value of the discriminant.
- Solve quadratic equations using the quadratic formula.
- Analyze a quadratic function as it models a real-life situation.

### Chapter 9 Objectives

- Recognize exponents as repeated multiplication of the base number.
- Write numeric values with a base and exponent.
- Use the power of a power property, the power of a product property, and the power of a quotient property to simplify expressions.
- Evaluate expressions with negative and zero exponents.
- Find the  $n$ th root of a number.
- Write expressions in radical and rational exponent form.

### Chapter 10 Objectives

- Identify the terms and coefficients of polynomials.
- Classify polynomials by the number of terms and their degree.
- Write polynomials in standard form.
- Use the vertical line test to determine if graphed equations are functions.
- Add polynomials by combining like terms.
- Subtract polynomials by distributing subtraction.

- Use an area model to multiply polynomials.
- Use the distributive property to multiply polynomials.
- Use the FOIL pattern to multiply binomials.
- Factor a greatest common factor from a polynomial.
- Use the product and sum rule to factor polynomials of the form  $x^2 + bx + c$ .
- Use guess and check to factor polynomials of the form  $ax^2 + bx + c$ .

### Chapter 13 Objectives

- Identify a transformation of a quadratic function from its graph.
- Write the equation of a transformed quadratic in vertex form from a graph.
- From a transformed quadratic equation in vertex form, describe and graph the resulting quadratic.
- Evaluate exponential functions.
- Recognize the difference between linear, quadratic and exponential growth from data.
- Write and graph an exponential function to model exponential growth.
- Identify transformations of exponential functions.
- Identify domains and ranges of exponential functions.
- Write and graph an exponential function to model exponential decay.
- Use exponential models to make predictions.

Algebra IA: Chapters 1, 3, 4

Algebra IB: Chapters 5, 6, 7

Algebra IC: Chapters 8, 9, 10, 13

### Computer component:

- Approximately 30% of class time will be spent using the computerized cognitive tutor. Computer work will be self-paced with requirements set by the teacher.

### Cooperative learning:

- Students will be expected to work cooperatively and collaboratively on class projects and presentations.

### Writing in math class:

- Students will be expected to write about the mathematics they are using.

### Presentations:

- Students will be expected to present their work to the class.

### **TEACHER CONTACT INFORMATION**

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|---------------|--|--------------|
| ● Mr. Coffey  | <a href="mailto:mcoffey@lsps.org">mcoffey@lsps.org</a>   | 586-285-8970 |
| ● Mrs. Roda   | <a href="mailto:jroda@lsps.org">jroda@lsps.org</a>       | 586-285-8961 |
| ● Mr. Stevens | <a href="mailto:tstevens@lsps.org">tstevens@lsps.org</a> | 586-285-8957 |

**Algebra I Weebly Site:** <http://carnegiealgebra1.weebly.com/>