

Los Angeles Unified School District

District Mathematics Program Instructional Guide

McDougal Littell
Algebra 1A1 / 1A2



Rationale for Algebra 1A1/1A2 Instructional Guide

Organizational Highlights

A textbook is but one of the various resources that can be used to access the content standards. Through the Algebra Mandate, teachers were given resources during LUCI training or Algebra Strategies training. These resources are available for teachers to use along with the textbook..

Recommended lessons from McDougal Littell, *Algebra 1, Concepts & Skills*, are listed for each of the content standards. California Content Standards are listed in each section of the book. Individual lessons consist of assignment guides, assessment resources, problem solving exercises, teaching resources, and strategies for English Language Learners.

Quarter One

Modern applications of mathematics rely on solving systems of linear equations more than on any other single technique (*Mathematics Framework for California Public Schools*, p. 159) Thus, the first basic skills that must be learned in Algebra 1 are those that relate to understanding linear equations. Thus, the first quarter goes back to seventh grade standards to work on algebraic properties and solving linear equations with one variable. This allows for students to take another look at the basis for algebraic thinking and to solidify the skills necessary to be successful in Algebra.

Quarter Two

The second quarter continues to build upon linear equations, adding the dimensions of word problems and graphs. The Design Team felt it was important for students to master these standards before moving on to solving systems of equations.

Quarter Three

In the 3rd Quarter students continue to work on linear equations and inequalities, and absolute value equations and inequalities are added. The state has identified that the second major component of Algebra 1 is the application of linear equations and inequalities by beginning to solve systems of equations, which account for much of what is needed in higher mathematics.

Quarter Four

The fourth quarter addresses slope and other properties of graphs, preparing students for the first quarter of Algebra 1B1. Students continue to work on systems of equations and inequalities. Application is presented with rate and motion problems. This lays the groundwork for the second year of this program.

LOS ANGELES UNIFIED SCHOOL DISTRICT
Algebra 1A1/1A2
Mathematics Instructional Guide: Quarter One

ALGEBRAIC EXPRESSIONS ◊ NUMBER SENSE

Standards:

- * 1.0 Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable.
- 1.1 Students use properties of numbers to demonstrate whether assertions are true or false
- * 2.0 Students understand and use such operations as taking the opposite, finding the reciprocal, ~~taking a root, and raising to a fractional power.~~ They understand ~~and use the rules of exponents.~~
- * 4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.
- 24.0 – 25.3 Embedded Standards

Dates**	Standard #	Concepts	McDougal Littell	Additional Resources
	1.0	Algebraic properties; solving and applying linear equations in one variable	Sections: 1.1 – 1.6	
	1.0 1.1 2.0 4.0	The number line, real numbers, algebraic properties	Sections: 2.1 – 2.8	
A S S E S S M E N T				
E N R I C H M E N T / R E T E A C H I N G				

Key: Power Standard

* Assessed Standard

~~Strikethrough~~: Topic not taught or assessed this quarter

** Dates to be determined at school site

LOS ANGELES UNIFIED SCHOOL DISTRICT
Algebra 1A1/1A2
Mathematics Instructional Guide: Quarter Two

APPLICATIONS OF LINEAR EQUATIONS

Standards:

- * 5.0 Students solve multi-step problems, including word problems, involving linear equations ~~and linear inequalities~~ in one variable and provide justification for each step.
 - * 6.0 Students graph a linear equation and compute the x – and y – intercepts (e.g., graph $2x + 6y = 4$). ~~They are also able to sketch the region defined by linear inequality (e.g., sketch the region defined by $2x + 6y < 4$).~~
 - * 7.0 Students verify that a point lies on a line, given an equation of the line. ~~Students are able to derive linear equations by using the point-slope formula.~~
- 24.0 – 25.3 Embedded Standards

Dates**	Standard #	Concepts	McDougal Littell	Additional Resources
	5.0	Solving linear equations and word problems	Sections: 3.1 – 3.9	<i>“Conveyor Belt”, Using Symbolic Algebra to Represent and to Solve Problems</i> , Pathwise Instructional Guide Two, ETS 2003
	6.0 7.0	Graph linear equations Verify points on a line	Sections: 4.1 – 4.7	<i>Exploring Relationships between Symbolic Expressions and Graphs</i> , Pathwise Guide Four, ETS 2003
A S S E S S M E N T				
E N R I C H M E N T / R E T E A C H I N G				

Key: Power Standard

* Assessed Standard

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LOS ANGELES UNIFIED SCHOOL DISTRICT
Algebra 1A1/1A2
Mathematics Instructional Guide: Quarter Three

ABSOLUTE VALUE ◊ SYSTEMS OF LINEAR EQUATIONS ◊ LINEAR INEQUALITIES

Standards:

- * **3.0** Students solve equations and inequalities involving absolute values.
 - * **5.0** Students solve multi-step problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.
 - * **6.0** Students graph a linear equation and compute the x - and y -intercepts (e.g., graph $2x + 6y = 4$). They are also able to sketch the region defined by linear inequality (e.g., sketch the region defined by $2x + 6y < 4$).
 - * **7.0** ~~Students verify that a point lies on a line, given the equation of the line.~~ Students are able to derive the equation of a line by using the point-slope formula.
 - * **9.0** Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to sketch the solutions sets.
- 24.0 – 25.3 Embedded Standards

Dates**	Standard #	Concepts	McDougal Littell	Additional Resources
	5.0 6.0	Solving problems with linear equations	Sections: 3.6 – 3.9	
	7.0 5.0	Point slope formula and equations Word problems	Review section: 4.7 Sections: 5.1 – 5.5	
	3.0 5.0 6.0	Solve and graph linear inequalities Absolute value in equations and inequalities	Sections: 6.1 – 6.8	
	9.0	Solving linear systems of equations	Sections: 7.1 – 7.6	
A S S E S S M E N T				
E N R I C H M E N T / R E T E A C H I N G				

Key: Power Standard

* Assessed Standard

~~Strikethrough~~: Topic not taught or assessed this quarter

** Dates to be determined at school site

LOS ANGELES UNIFIED SCHOOL DISTRICT
Algebra 1A1/1A2
Mathematics Instructional Guide: Quarter Four

SYSTEMS OF EQUATIONS ◊ COORDINATE GEOMETRY ◊ RATE PROBLEMS

Standards:

- * 3.0 Students solve equations and inequalities involving absolute value.
 - * 5.0 Students solve multi-step problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.
 - * 6.0 Students graph a linear equation and compute the x - and y -intercepts (e.g., graph $2x + 6y = 4$). They are also able to sketch the region defined by linear inequality (e.g., sketch the region defined by $2x + 6y < 4$).
 - * 7.0 ~~Students verify that a point lies on a line, given the equation of the line.~~ Students are able to derive the equation of a line by using the point-slope formula.
 - * 8.0 Students understand the concepts of parallel line and perpendicular lines and how those slopes are related. Students are able to find the equation of a line perpendicular to a given line that passes through a given point.
 - * 9.0 Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to sketch the solutions sets.
 - * 15.0 Students apply algebraic techniques to solve rate problems, ~~work problems, and percent mixture problems.~~
- 24.0 – 25.3 Embedded Standards

Dates**	Standard #	Concepts	McDougal Littell	Additional Resources
	7.0 8.0	Slope; perpendicular and parallel lines	Review sections: 5.1 – 5.6	<i>Analyzing Graphs and Interpreting Slopes</i> , Pathwise Instructional Tools Guide One, ETS 2003
	3.0 5.0 6.0	Absolute value equations and inequalities; solving and graphing inequalities	Review sections: 6.6 – 6.8	
	9.0	Systems of inequalities	Review section: 7.6	
	15.0	Applications of equations to rate problems	Sections: 3.7, 3.8, 5.5	
A S S E S S M E N T				
E N R I C H M E N T / R E T E A C H I N G				

Key: Power Standard
 * Assessed Standard
~~Strikethrough~~: Topic not taught or assessed this quarter
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