

**Center for Talent Development
Northwestern University
Course Syllabus**

Program: Gifted LearningLinks

Course Title: Algebra I Honors

Course Description:

Algebra is a system of mathematics that uses symbols to generalize certain arithmetic operations and relationships. Topics covered in this course include rules of algebra, signed numbers, equations, inequalities, graphing formulas and functions, systems of equations, exponents, radicals, polynomials, quadratics, proportions and rational equations. Problems and solutions are presented and discussed throughout the session. Success in this course allows students to take Geometry Honors, Algebra II and Trigonometry Honors and/or C++.
High school credit: 2 semesters.

Outcomes: Upon successful completion of this course, students will:

- Understand more about sets of numbers
- Manipulate symbols representing unknowns
- Solve systems of Equations
- Graph functions and relations
- Gain skill with functions in two dimensions
- Realize an importance of math in everyday life
- Gain proficiency with word problems

Resources and Materials:

Text: *Algebra 1*: R. Larson, L. Boswell et. al. (2007) McDougal Littell. ISBN-10: 0-618-59556-2.

Materials: Notebook, Website PIN and Calculator.

Please Note:

Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.

Student Evaluation and Grading Policies for Credit Courses Only:

A+ 97-100 (A+ is at instructor's discretion; an instructor can use 97-100 A)
A 93-96
A- 90-92
B+ 87-89
B 83-86
B- 80-82
C+ 77-79

- C 73-76
- C- 70-72
- D+ 67-69
- D 63-66
- D- 60-62
- F Below 60

Students must complete each chapter with a grade of 70% or above on the chapter test in order to receive credit for that chapter. Test retakes are possible. The main goal of this course is to complete chapters 1-12 in nine months with good progress in order to master Algebra I and to obtain from the students school 2 semesters of honors credit. The student grade the average of the 12 unit tests that comprise the course.

Instructor Biography:

Stephen Dickman has a Master of Science in Physics from the University of Iowa. He has taught at Evanston Township High School for 15 years. He has also taught overseas and worked in financial firms in a mathematical capacity. Mr. Dickman is very passionate about teaching mathematics and continues to be a student of this amazing field. Mr. Dickman has taught for the *Center for Talent Development* for 7 years.

Contact Information:

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Schedule:

Date(s)	Topic(s)	Activities	Chapter Assignments Section: #	Instructional Strategies
1st 3 weeks	Chapter 1: Expressions, Equations and Functions	Problem Solving	1.1: 3,13,29,37,49 51 & 53 1.2: 3,15,17,23, 29 & 35. 1.3: 5,7,11,17,21 23& 35. 1.4: 3,5,7,11,17, 21 & 41. 1.5: 5,9,17,19 & 23 1.6: 5,7,15 & 25. 1.7: 5,6,11,17 & 19.	This chapter is mostly review. Students should read the chapter and ask questions during the Chat session.
2nd 3 weeks	Chapter 2: Properties of Real Numbers	Problem Solving	2.1: 13,19,39, 51 & 53. 2.2: 13,35,37, 41 & 57. 2.3: 3,5,11,21 33 & 43. 2.4: 11,13,17,31 41 & 51. 2.5: 9,11,15,23, 29,33, 41 & 51.	This chapter is mostly review. Students should read the chapter and ask questions during the Chat session.

			<p>2.6: 13,17,21,25 29, 37 & 41. 2.7: 3,7,11,19,23 35,39 & 47.</p>	
3rd 3 weeks.	Chapter 3: Solving Linear Equations.	Problem Solving	<p>3.1: 7,13,17,19 25,39,45,47 & 55 3.2: 3,13,19,27 29 & 37. 3.3: 7,11,13,19 27 & 33. 3.4: 3,11,13,19 25,35 & 45. 3.5: 3,7,9,17,23 31,37 & 45. 3.6: 3,13,19,21 25 & 39. 3.7: 3,5,13,21 27 & 35. 3.8: 3,5,11,17,23 25,27 & 33.</p>	This chapter is mostly review. Students should read the chapter and ask questions during the Chat session.
4th 3 weeks	Chapter 4: Graphing Linear Equations and Functions.	Problem Solving	<p>4.1: 3,9,11,15,19 25,29 & 37. 4.2: 3,7,11,23,25 27,33 & 37. 4.3: 5,11,15,17 21,29,39 & 45. 4.4: 5,11,15,21 25,31 & 37. 4.5: 3,5,7,11,15 19,21,31 & 35. 4.6: 13,15,21,23 29,35 & 41. 4.7: 3,11,17 31 & 39.</p>	Students should read the chapter and ask questions during the Chat session.
5th 3 weeks	Chapter 5: Writing Linear Equations.	Problem Solving	<p>5.1: 3,7,13,19,21 25,33,43 & 47. 5.2: 3,5,11,15,17 21,23,39 & 49. 5.3: 3,7,15,19,21 23 & 39. 5.4: 11,17,25,31 35 & 39. 5.5: 3,7,13,15,19 23 & 33. 5.6: 3,5 & 17.</p>	Students should read the chapter and ask questions during the Chat session.
6th 3 weeks	Chapter 6: Solving and Graphing Linear Inequalities.	Problem Solving	<p>6.1: 3,7,11,15,21 25,27 & 33. 6.2: 3,9,13,17,23 33 & 39. 6.3: 3,5,9,13,17 27,35 & 39. 6.4: 3,7,11,15, 19 & 33. 6.5: 3,7,11,15,23</p>	Students should read the chapter and ask questions during the Chat session.

			31 & 45. 6.6: 5,9,15,17 & 31. 6.7: 5,9,19,27,41 & 45.	
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Semester II

Date(s)	Topic(s)	Activities	Chapter Assignments	Instructional Strategies
7 th 3 weeks	Chapter 7: Systems of Equations and Inequalities	Problem Solving	7.1: 9,15,17,19, 23,25 & 31. 7.2: 3,7,11,13,23 & 33. 7.3: 3,5,9,13,17, 25 & 35. 7.4: 3,,9,11,15, 21,25,31 & 33. 7.5: 5,6,7,11,13, 15,19,25 & 41. 7.6: 3,7,9,13,15 25 & 27..	Students should read the chapter and ask questions during the Chat session.
8 th 3 weeks	Chapter 8: Exponents and Exponential Functions.	Problem Solving	8.1: 9,13,19, 21, 31,33,47 & 55. 8.2: 5,7,9,13,15 23,29,33,43 & 51. 8.3: 3,5,11,21,31,37 43 & 53. 8.4: 3,7,10,17,23 27,41 & 53. 8.5: 9,19 & 23. 8.6: 7,9 & 19.	Students should read the chapter and ask questions during the Chat session.
9 th 3 weeks	Chapter 9: Polynomials and Factoring.	Problem Solving	9.1: 11,13,15,21, 23,25,31 & 39. 9.2: 3,5,7,9,11, 13,23,27,37 & 41. 9.3: 5,7,11,15, 17,23,25,27,33 & 35. 9.4: 5,7,9,11,21 25,27,29,31,35, 41 & 55. 9.5: 3,5,7,11,13 17,21,25,27,31, 37,45,47 & 65 (Give 65 a try!) 9.6: 13-53°. 9.7: 3,11 & 25. 9.8: 3,7,11,13,15 23, 27 & 33.	Students should read the chapter and ask questions during the Chat session.
10 th 3 weeks	Chapter 10: Quadratic Equations and Functions.	Problem Solving	10.1: 3,5,17,19, 25,31 & 41. 10.2: 3,9,15,17, 19,25,27,29 & 41. 10.3: 3,5,7,9,15,	Students should read the chapter and ask questions during the Chat session.

			17,23,31 & 35. 10.4: 3,5,10(no solution),13,17,21 10.5: 3,5,7,13,19 29,33, 41 & 47. 10.6: 3,5,7,9,13, 19,29,43 & 47. 10.7: 3,5,7,9,23, 25 & 35..	
11th 3 weeks	Chapter 11: Radicals and Geometry Connections.	Problem Solving	11.1: 3,5,9,15,17 23,25,39 & 45. 11.2: 3,5,7,9,15, 17,19,27,29,37,45 49 & 51. 11.3: 3,5,7,11,15, 19,25,27 & 37. 11.4: 3,11,17,19, 23,27,29 & 35. 11.5: 3,7,9,17,21, 23,25 & 47.	Students should read the chapter and ask questions during the Chat session.
12th weeks	Chapter 12: Rational Equations and Functions.	Problem Solving	12.1: 3,5,7,15,17, 29,33,49 & 51. 12.2: 3,5,19 & 21. 12.3: 3,5,7,13,15, 25 & 31. 12.4: 5,9,13,19,21 23,27,29 & 37. 12.5: 5,7,13,15,17 29 & 35. 12.6: 7,13,15,23, 29 & 35. 12.7: 3,7,15,17,21 23 & 33.	Students should read the chapter and ask questions during the Chat session.

Note: The contents of Chapter 13 do not fit the goals of the course. You may work on it as they are important.