

Algebra I Math Curriculum



Egg Harbor Township School District

State Board Adoption Date of Standards: 5/2016

Unit Overview (Standards Coverage)

Unit	Standards	Unit Focus	Standards for Mathematical Practice	Open Educational Resources
Unit 1 <i>Expressions, Equations, Word Problems, System of Equations & Inequalities</i> 13 weeks	N-RN.3 N-Q.1 A-SSE.1 A-CED.1 A-REI.1 A-REI.3 N-RN.3 S-CED.4 A-CED.2 A-CED.3 A-REI.5 A-REI.6 A-REI.10 A-REI.12	Create equations that describe numbers or relationships. Reasoning with Equations and Inequalities Seeing Structure in Expressions The real number system Reason quantitatively and use units to solve problems	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning	N.Q.A.1 Runners' World A.SSE.A.1 Kitchen Floor Tiles A.CED.A.1 Planes and wheat A-CED.A.1 Paying the rent A.CED.A.2 Clea on an Escalator S.ID.B.6.S.ID.C.7-9 Coffee and Crime A.REI.B.3, A.REI.A.1 Reasoning with linear inequalities A.CED.A.4 Equations and Formulas A.REI.C.5 Solving Two Equations in Two Unknowns www.kutasoftware.com www.deltamath.com www.socrative.com www.bigideasmath.com
Unit 2 <i>Linear Functions & the applications</i> 7 weeks	N-RN.3 A-CED.2 A-REI 10 F-BF.1 F-IF.4 F-IF.7 F-LE.1 F-IF.1 F-IF.2 F-IF.3 F-IF.5 F-IF.7 F-IF.9	Interpreting Functions Building Functions Linear, Quadratic and Exponential Models Creating Equations		A.REI.C.6 Cash Box A.CED.A.3 Dimes and Quarters A.REI.D.12 Fishing Adventures 3 F.IF.A.1 The Parking Lot F.IF.A.2 Yam in the Oven F.LE.A.1 Finding Linear and Exponential Models F.LE.A.2 Interesting Interest Rates

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	F-BF.1, F-BF.2, F-BF.3 F-LE.1, F-LE.2, F-LE.5	Reasoning with equations and inequalities	
Unit 3 <i>Polynomials & Radical Expressions</i> <i>10 weeks</i>	N-RN.B.3 A-APR.1 A-SSE.2 A-CED.1 A-CED.2 A-REI.3 A-REI.10 F-IF.7 F-BF.3	Creating Equations Seeing Structure in Expressions Reasoning with Equations and Inequalities The Real Number System Arithmetic with Polynomials and Rational Expressions Interpreting Functions Building Functions	A.SSE.A.2 Equivalent Expressions F.BF.B.3 Identifying Even and Odd Functions F.BF.B.3 Transforming the graph of a function A.APR.A.1 Powers of 11 A.SSE.B.3 Profit of a company A.SSE.B.3 Rewriting a Quadratic Expression A.APR.B.3 Graphing from Factors 1 www.kutasoftware.com www.deltamath.com www.socrative.com www.bigideasmath.com
Unit 4 <i>Graphing & Solving Non-Linear</i> <i>6 weeks</i>	A-CED.1 A-CED.2 A-REI.3 A-REI.10 F-IF.7 F-IF.7 F-IF.4 F-BF.3 N-RN.3 F-IF.9 F-BF.1 F-LE.1	Building Functions Linear, Quadratic, and Exponential Models Interpreting Functions Reasoning with Equations and Inequalities The Real Number System Creating Equations	A.REI.B.4 Visualizing Completing the Square A.REI.B.4 Braking Distance A.REI.B.4 Two Squares are Equal F.IF.B.4 Words – Tables - Graphs F.IF.B.5 The restaurant F.IF.C.8a Springboard Dive F.IF.C.8a Which Function? F.IF.B.9 Throwing Baseballs F.IF.B.6 Mathemafish Population F.LE.A.3 Population and Food Supply F.BF.B.3 Identifying Even and Odd Functions F.BF.B.3 Transforming the graph of a function A.REI.D.11 Introduction to Polynomials – College Fund www.kutasoftware.com www.deltamath.com

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				www.socrative.com
<p>Unit 5 <i>Statistical Measures</i> 2 weeks</p>	<p>S-ID.1 S-ID.2 S-ID.3 S-ID.5</p>	<p>Interpreting Categorical and Quantitative Data</p>		<p>S.ID.A.1-3 Haircut Costs S.ID.A.1-3 Speed Trap S.ID.A.2-3 Measuring Variability in a Data Set S.ID.A.3 Identifying Outliers S.ID.B.5 Support for a Longer School Day? S.ID.B.6 Laptop Battery Charge 2 F.IF.B.4 The Aquarium F.IF.B.4 Containers F.IF.B.4-5 The Canoe Trip, Variation 2 www.kutasoftware.com www.deltamath.com www.socrative.com www.bigideasmath.com</p>

This document outlines in detail the answers to the following four questions:

1. What do we want our students to know?
2. How do we know if they learned it?
3. What do we do if they did not learn it?

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4. What do we do when they did learn it?

Unit 1 ALGEBRA I		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> ● HSN-RN.B.3: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. ● HSN-Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. ● HSN-SSE.1: Interpret expressions that represent a quantity in terms of its context. ● HSN-CED.A.1: Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. ● HSA-CED.A.2 Create equations in two or more variables to represent relationships between quantities ● HSA-CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities and interpret solutions as viable or nonviable options in; a modeling context. ● HSA-REI.C.1: Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. ● HSA-REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. 	<ul style="list-style-type: none"> ● WHST.11-12.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. ● RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem 	<p>Concepts:</p> <ul style="list-style-type: none"> ● Find a common denominator ● Add, subtract, multiply and divide rational numbers ● Define a variable, simplify and write an expression ● Solve an equation of various steps including a system ● Check their solution by substituting into equation ● Graph an ordered pair on the coordinate plane ● Explain how an exponent works ● Define what it means to have like “bases” ● Perform real number operations <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Solve an equation that contains one or two inverse operations ● Determine whether a given value is a solution to a given equation ● Simplify and evaluate an expression ● Classify numbers using the terms rational, irrational, real, whole or integer ● Write an equation to model a real life situation ● Simplify each side of an equation prior to solving ● Translate a word problem into a workable equation ● Solve for two unknowns using one variable ● Solve a problem that involves consecutive integers ● Solve real life problems such as percent and distance

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<ul style="list-style-type: none"> ● HSA-REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. ● HSA-REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane ● HSN-RN.A.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational ● HSA-REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of strict inequality) and graph the solutions set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. 		<ul style="list-style-type: none"> ● Solve a system of equations graphically or thru the methods of substitution or elimination ● Describe a system of equations as intersecting, parallel, or coincident and identify the number of existing solutions for the system ● Write a system of equations to model a real life situation ● Solve an inequality and graph its solution on a number line ● Solve a word problem that involves an inequality ● Write an inequality to match a given graph ● Graph linear inequalities ● Solve compound inequalities
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Unit 1 ALGEBRA I

Stage 1 – Desired Results

UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES
<p>Students will be able to perform real number operations along with evaluating and simplifying expressions. Students will learn how to use inverse operations to solve equations with various steps. Students will learn to write and solve basic equations to solve real world problems. They will use their equation solving skills to solve the inequalities. Graphs in both one and two variables will be used to represent solutions. Lastly, they will use their knowledge of equations to solve a system.</p>	<ul style="list-style-type: none"> ● www.kutasoftware.com ● www.deltamath.com ● www.socrative.com ● www.bigideasmath.com

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UNDERSTANDINGS	
<p>A solution to an equation can be checked by plugging it back in and making sure the number makes the statement true. Students will understand equations can get solved but expressions get simplified.</p>	
Students will know...	Students will be able to...
<ul style="list-style-type: none"> ● How to add, subtract, multiply and divide rational numbers ● Define a variable, simplify and write an expression ● How to solve an equation of various steps including a system ● Check their solution by substituting into equation ● Graph an ordered pair on the coordinate plane ● Explain how an exponent works ● Define what it means to have like “bases” ● Perform real number operations 	<ul style="list-style-type: none"> ● Solve an equation that contains one or two inverse operations ● Determine whether a given value is a solution to a given equation ● Simplify and evaluate an expression ● Classify numbers using the terms rational, irrational, real, whole or integer ● Write an equation to model a real life situation ● Translate a word problem into a workable equation ● Solve for two unknowns using one variable ● Solve a problem that involves consecutive integers ● Solve real life problems such as percent and distance ● Solve a system of equations graphically or thru the methods of substitution or elimination ● Describe a system of equations as intersecting, parallel, or coincident and identify the number of existing solutions for the system ● Write a system of equations to model a real life situation ● Solve an inequality and graph its solution on a number line ● Solve a word problem that involves an inequality ● Write an inequality to match a given graph ● Graph linear inequalities ● Solve compound inequalities
Stage 2 – Assessment Evidence	
<p>Performance Tasks:</p> <p><u>Performance Tasks/Use of Technology</u></p> <ul style="list-style-type: none"> ● Homework/ Classwork ● Warm-Ups ● Exit Questions ● www.quizlet.live.com ● www.mathxlforschool.com ● www.khanacademy.com ● www.desmos.com ● Class Participation 	<p>Other Evidence:</p> <p><u>Formative</u></p> <ul style="list-style-type: none"> ● Teacher observations ● Exit slips/ check for understanding ● Games ● Daily Classwork ● Pre-Assessment ● Quizzes ● Student Activity Pages

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<ul style="list-style-type: none">• www.kahoot.com• Whiteboards/communicators• www.quizizz.com• Think-Pair-Share• www.ixl.com• Notebook Checks• Classroom Games• Self-assessment• www.kutasoftware.com• www.deltamath.com• www.socrative.com• www.bigideasmath.com	<p><u>Summative</u></p> <ul style="list-style-type: none">• Quizzes• Performance Task• Unit Test• Linkit Benchmark
<p style="text-align: center;">Stage 3 – Learning Plan</p>	
<p>• <i>We will begin our unit with the definitions of the number sets. We will discuss the differences between expressions and equations then begin with simplifying expressions. We will move on to simple equations and word problems then build each day until we reach systems. Once we reach systems, we look at special case systems and what makes them have no solution or infinitely many. Students will be monitored throughout the unit to check for understanding with exit quizzes and homework assignments. We will move on to inequalities and their graphs then end with the systems.</i></p> <p>• <i>Hook the students through engaging and provocative entry points: thought-provoking and focusing experiences, issues, oddities, problems, and challenges that point toward essential questions, core ideas, and final performance tasks.</i></p> <p><i>Explore and Equip. 21st Century Learning and Interdisciplinary connections. Engage students in learning experiences that allow them to explore the big ideas and essential questions; that cause them to pursue leads or hunches, research and test ideas, try things out. Equip students for the final performances through guided instruction and coaching on needed skills and knowledge. Have them experience the ideas to make them real.</i></p> <p>• <i>Organize and sequence the learning for maximal engagement and effectiveness, given the desired results.</i></p>	
<p style="text-align: center;">Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students</p>	
<p>• <i>Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.</i></p>	

• *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*

• *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

Gifted & Talented:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
- Student Choice/Driven Activities
- Group Projects
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

Tier I:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources
- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review
- Vocabulary Support Glossary resources
- Mini-Assessments
- Game Closet
- Lesson Tutorials

- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Learning Ally](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)

Tier II:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

Tier III:

- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

ELL:

- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
- Student Dynamic eBook Audio has the option to be read in English or Spanish
- Multi-Language Glossary for new Math vocabulary is available in 14 different languages.
- Audio version is available in English or Spanish.
- Game Closet can be accessed in English or Spanish, while also allowing for all students to play and understand these educational games.
- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
- Student Journal available in Spanish.
- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

SPED:

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

A. Setting Accommodations

1. Administering the assessment:
 - a. individually in a separate room
 - b. in a small group in a separate room
 - c. in the resource room
 - d. in a special education classroom
 - e. at home or in a hospital (this will depend on the nature of the assessment task)
2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

B. Scheduling Accommodations

1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

C. Test Materials Modifications

1. Administering the large-print version of the test
2. Administering the Braille version of the test

D. Test Procedure Modifications

1. Administration modifications
 - a. reading directions aloud
 - b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
 - c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
 - d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
 - e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
 - f. repeating, clarifying, or rewording directions ONLY
 - g. providing written directions on a separate sheet or transparency
 - h. using an examiner who is familiar with the student
 - i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
 - j. providing manipulatives for math items e.g., number line, counting chips, abacus

2. Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet
- i. allowing separate additional continuation pages for writing tasks

504:

General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

Environmental Strategies

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location of personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

Organizational Strategies

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills
- Schedule before or after school tutoring/homework assistance

Behavioral Strategies

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)
- Establish a home/school communication system for behavior monitoring

- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
 - a) lecture plus overhead/board demonstration support
 - b) small groups required to produce a written product
 - c) large groups required to demonstrate a process
 - d) computer-assisted instruction
 - e) peer tutors or cross-age tutors
 - f) demonstrations, simulations
 - g) experiments
 - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts • Prepare advanced organizers/study guides for new material

Assignments

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks

- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

Evaluation Methods

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

Unit 2 ALGEBRA I		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> • HSN-RN.B.3: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. • HSA-CED.A.2 Create equations in two or more variables to represent relationships between quantities 	<ul style="list-style-type: none"> • WHST.11-12.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. • RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem 	<p>Concepts:</p> <ul style="list-style-type: none"> • Graph an ordered pair on the coordinate plane • How to calculate slope • How to graph a line • How to write an equation of a line • Graph an equation using a table of values • Perform real number operations without a calculator

<ul style="list-style-type: none"> ● HSA-REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane ● HSA-FBF.1: Write a function that describes a relationship between two quantities. ● HSA.FBF.2: Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ● HSA.FBF.3: Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. ● HSF-IF.B.1 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. ● HSF-IF.C.7a Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. Graph linear and quadratic functions and show intercepts, maxima, and minima. ● HSF-LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. ● HSF-LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). ● HSF-LE.B.5 Interpret the parameters in a linear or exponential function in terms of a context. ● HSF-IF.A.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of 		<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Translate among representations of linear relationships including graphs, tables, and equations. ● Determine whether or not a given relation is a function ● Evaluate functions to find pairs of input and output ● Interpret the meaning of a real-life graph ● Describe transformations of a linear function ● Use a line of best fit to answer questions ● Calculate slope given two points ● Calculate the intercepts of a line and use them to draw a graph of the line - ● Graph a linear function using its slope and y-intercept ● Write an equation of a line in slope-intercept form given various pieces of information ● Write equations of lines that are parallel or perpendicular to a given line.
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<p>f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.</p> <ul style="list-style-type: none"> ● HSF-IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. ● HSF-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal description). 		
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Unit 2 ALGEBRA I

Stage 1 – Desired Results

UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES
<p>We will learn how to graph lines using intercepts and slope. We will learn how to write equations to represent lines. We will learn the relationship between slopes of parallel and perpendicular lines. We will then expand to the real life meanings of linear functions. We will talk about slope as a rate of change and look at how to interpret it for a given situation. We will explore real life graphs and look at how transformations change their meaning.</p>	<ul style="list-style-type: none"> ● www.kutasoftware.com ● www.deltamath.com ● www.socrative.com ● www.bigideasmath.com

UNDERSTANDINGS

Students will understand that a function has a domain and range. Students will understand that if a function is linear, it has to have a constant rate of change.

Students will know...	Students will be able to...
<ul style="list-style-type: none"> ● Graph an ordered pair on the coordinate plane ● How to calculate slope ● How to graph a line ● How to write an equation of a line ● Graph an equation using a table of values ● Perform real number operations without a calculator 	<ul style="list-style-type: none"> ● Translate among representations of linear relationships including graphs, tables, and equations. ● Determine whether or not a given relation is a function ● Evaluate functions to find pairs of input and output ● Interpret the meaning of a real-life graph ● Describe transformations of a linear function ● Use a line of best fit to answer questions ● Calculate slope given two points ● Calculate the intercepts of a line and use them to draw a graph of the line - ● Graph a linear function using its slope and y-intercept ● Write an equation of a line in slope-intercept form given various pieces of information

- Write equations of lines that are parallel or perpendicular to a given line.

Stage 2 – Assessment Evidence

Performance Tasks:

Performance Tasks/Use of Technology

- Homework/ Classwork
- Warm-Ups
- Exit Questions
- www.quizlet.live.com
- www.mathxlforschool.com
- www.khanacademy.com
- www.desmos.com
- Class Participation
- www.kahoot.com
- Whiteboards/communicators
- www.quizizz.com
- Think-Pair-Share
- www.ixl.com
- Notebook Checks
- Classroom Games
- Self-assessment
- www.kutasoftware.com
- www.deltamath.com
- www.socrative.com
- www.bigideasmath.com

Other Evidence:

Formative

- Teacher observations
- Exit slips/ check for understanding
- Games
- Daily Classwork
- Pre-Assessment
- Quizzes
- Student Activity Pages

Summative

- Quizzes
- Performance Task
- Unit Test
- Linkit Benchmark

Stage 3 – Learning Plan

• *We will begin with reviewing the coordinate plane and its aspects. We will move on to discussing what makes a function a function and how linear functions can be written, graphed and interpreted. We will spend time creating and analyzing scatter plots and stress slope as rise over run. We will work with real-life situations and write functions based on input/output and identify the independent and dependent variables. In this unit, students tend to plot ordered pairs wrong, so we will need to stress x before y as it is in the alphabet.*

• *Hook the student through engaging and provocative entry points: thought-provoking and focusing experiences, issues, oddities, problems, and challenges that point toward essential questions, core ideas, and final performance tasks.*

- *Explore and Equip. 21st Century Learning and Interdisciplinary connections. Engage students in learning experiences that allow them to explore the big ideas and essential questions; that cause them to pursue leads or hunches, research and test ideas, try things out. Equip students for the final performances through guided instruction and coaching on needed skill and knowledge. Have them experience the ideas to make them real.*
- *Organize and sequence the learning for maximal engagement and effectiveness, given the desired results.*

Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

Gifted & Talented:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
- Student Choice/Driven Activities
- Group Projects
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

Tier I:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources
- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review
- Vocabulary Support Glossary resources
- Mini-Assessments
- Game Closet
- Lesson Tutorials
- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
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- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)

Tier II:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook

- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

Tier III:

- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

ELL:

- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
- Student Dynamic eBook Audio has the option to be read in English or Spanish
- Multi-Language Glossary for new Math vocabulary is available in 14 different languages.
- Audio version is available in English or Spanish.
- Game Closet can be accessed in English or Spanish, while also allowing for all students to play and understand these educational games.
- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
- Student Journal available in Spanish.
- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

SPED:

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

A. Setting Accommodations

1. Administering the assessment:
 - a. individually in a separate room
 - b. in a small group in a separate room
 - c. in the resource room
 - d. in a special education classroom
 - e. at home or in a hospital (this will depend on the nature of the assessment task)
2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

B. Scheduling Accommodations

1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

C. Test Materials Modifications

1. Administering the large-print version of the test
2. Administering the Braille version of the test

D. Test Procedure Modifications

1. Administration modifications
 - a. reading directions aloud
 - b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
 - c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
 - d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
 - e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
 - f. repeating, clarifying, or rewording directions ONLY
 - g. providing written directions on a separate sheet or transparency
 - h. using an examiner who is familiar with the student
 - i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
 - j. providing manipulatives for math items e.g., number line, counting chips, abacus

2. Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet
- i. allowing separate additional continuation pages for writing tasks

504:

General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

Environmental Strategies

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

Organizational Strategies

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills

- Schedule before or after school tutoring/homework assistance

Behavioral Strategies

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)
- Establish a home/school communication system for behavior monitoring
- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
 - a) lecture plus overhead/board demonstration support
 - b) small groups required to produce a written product
 - c) large groups required to demonstrate a process
 - d) computer-assisted instruction
 - e) peer tutors or cross-age tutors
 - f) demonstrations, simulations
 - g) experiments
 - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used

- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts • Prepare advanced organizers/study guides for new material

Assignments

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

Evaluation Methods

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

Unit 3 ALGEBRA I		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> ● HSN-RN.B.3: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. ● HSA-APR.1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. ● HSA-SSE.A.2 Use the structure of an expression to identify ways to rewrite it. ● HSF-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$, $kf(x)$, $f(kx)$, and $f(x+k)$ for specific values of k (both positive and negative; find the value of k given the ● graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them. ● HSA-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. ● HSA-CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. ● HSA-REI.B.3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. ● HSA-REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). ● HSF-IF.C.7b Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more 	<ul style="list-style-type: none"> ● WHST.11-12.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. ● RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem 	<p>Concepts:</p> <ul style="list-style-type: none"> ● What an exponent is and how it works ● How to identify like terms ● How to perform real number operations ● How to find the GCF of a set of numbers ● What an exponent is and how it works ● How to identify like terms ● How to perform real number operations ● How to find the GCF of a set of numbers ● Their factors ● Meaning of square root ● How to perform real number operations ● Like terms ● Properties of exponents ● How to solve an equation <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Add, subtract, and multiply polynomials ● Write polynomials to model real life situations ● Determine if an expression is completely simplified ● Completely factor a given polynomial ● Add, subtract, and multiply polynomials ● Write polynomials to model real life situations ● Determine if an expression is completely simplified ● Completely factor a given polynomial ● Simplify a radical ● Add, subtract, multiply and divide radical expressions ● Solve a quadratic equation using square roots ● Solve an equation containing a radical expression

Curricular Framework MATH-Algebra I

<p>complicated ones. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.</p>		
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Unit 3 ALGEBRA I

Stage 1 – Desired Results

UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES
<p>The unit will explore how to add, subtract and multiply polynomials by using the properties of exponents and combining like terms. We will learn how to factor polynomials by a variety of methods. We will explore how to rewrite exponential expressions by applying properties of exponents. We will apply knowledge of exponents to exponential functions and their graphs. Students will be able to simplify radical expressions and perform operations to simplify expressions. Students will recognize squares and square roots as inverse operations and use them appropriately in equation solving.</p>	<ul style="list-style-type: none"> • www.kutasoftware.com • www.deltamath.com • www.socrative.com • www.bigideasmath.com

UNDERSTANDINGS

Students will understand that we can simplify an expression by applying the properties of exponents. Students will understand that we can solve an equation containing radicals and square roots by applying the inverse operations.

Students will know...	Students will be able to...
<p><i>What content will be covered that students must master?</i></p> <ul style="list-style-type: none"> • What an exponent is and how it works • How to identify like terms • How to perform real number operations • How to find the GCF of a set of numbers • What an exponent is and how it works • How to identify like terms • How to perform real number operations • How to find the GCF of a set of numbers • Their factors • Meaning of square root 	<p><i>What should students be able to accomplish to demonstrate understanding?</i></p> <ul style="list-style-type: none"> • Add, subtract, and multiply polynomials • Write polynomials to model real life situations • Determine if an expression is completely simplified • Completely factor a given polynomial • Add, subtract, and multiply polynomials • Write polynomials to model real life situations • Determine if an expression is completely simplified • Completely factor a given polynomial • Simplify a radical • Add, subtract, multiply and divide radical expressions

Curricular Framework MATH-Algebra I

<ul style="list-style-type: none"> ● How to perform real number operations ● Like terms ● Properties of exponents ● How to solve an equation 	<ul style="list-style-type: none"> ● Solve a quadratic equation using square roots ● Solve an equation containing a radical expression
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Stage 2 – Assessment Evidence

<p>Performance Tasks: <u>Performance Tasks/Use of Technology</u></p> <ul style="list-style-type: none"> ● Homework/ Classwork ● Warm-Ups ● Exit Questions ● www.quizlet.live.com ● www.mathxlforschool.com ● www.khanacademy.com ● www.desmos.com ● Class Participation ● www.kahoot.com ● Whiteboards/communicators ● www.quizizz.com ● Think-Pair-Share ● www.ixl.com ● Notebook Checks ● Classroom Games ● Self-assessment ● www.kutasoftware.com ● www.deltamath.com ● www.socrative.com ● www.bigideasmath.com 	<p>Other Evidence:</p> <p><u>Formative</u></p> <ul style="list-style-type: none"> ● Teacher observations ● Exit slips/ check for understanding ● Games ● Daily Classwork ● Pre-Assessment ● Quizzes ● Student Activity Pages <p><u>Summative</u></p> <ul style="list-style-type: none"> ● Quizzes ● Performance Task ● Unit Test ● Linkit Benchmark
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Stage 3 – Learning Plan

• We will begin this unit by exploring all the properties of exponents. Students will spend a significant amount of time applying the properties to simplify expressions to ensure that they are successful when introduced to polynomial functions. A quiz and test will be administered to gauge student understanding. Any difficulties will be addressed at this point, then we will move into polynomial operations. Several games and activities will be played to engage the students while ensuring understanding. Factoring will be covered next, first with easy problems when $a=1$ then moving into the more challenging topics with special products and $a>1$. We will finish the unit by factoring completely, applying all of the knowledge introduced

throughout the chapter to factor each polynomial and check our answers when finished. Students will be monitored throughout the unit to check for understanding with exit quizzes and homework assignments. We will finish the unit with a thorough review and a test.

- *Hook the students through engaging and provocative entry points: thought-provoking and focusing experiences, issues, oddities, problems, and challenges that point toward essential questions, core ideas, and final performance tasks.*
- *Explore and Equip. 21st Century Learning and Interdisciplinary connections. Engage students in learning experiences that allow them to explore the big ideas and essential questions; that cause them to pursue leads or hunches, research and test ideas, try things out. Equip students for the final performances through guided instruction and coaching on needed skill and knowledge. Have them experience the ideas to make them real.*
- *Organize and sequence the learning for maximal engagement and effectiveness, given the desired results.*

Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

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- e. at home or in a hospital (this will depend on the nature of the assessment task)

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3. Seating the student facing the examiner or proctor

4. Providing special lighting

5. Providing special furniture e.g., desks, trays, carrels

B. Scheduling Accommodations

1. Adding time as needed

2. Providing frequent breaks

3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

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- Provide a structured learning environment
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 - c) large groups required to demonstrate a process
 - d) computer-assisted instruction
 - e) peer tutors or cross-age tutors
 - f) demonstrations, simulations
 - g) experiments
 - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring

- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts • Prepare advanced organizers/study guides for new material

Assignments

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

Evaluation Methods

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

Unit 4 ALGEBRA I		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> ● HSF-IF.C.7b Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated ones. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. ● HSF-BF.B.3 Identify the effect on the graph of replacing $f(x)$ with $f(x) + k$, $kf(x)$, $f(kx)$ and $f(x+k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them. ● HSN-RN.B.3: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. ● HSA-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. ● HSF-IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. ● HSF-IF.C.7a Graph functions expressed symbolically and show key features of the graph, by hand for simple cases and using technology for more complicated cases. Graph linear and quadratic functions and show intercepts, maxima, and minima. ● HSF-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal description). 	<ul style="list-style-type: none"> ● WHST.11-12.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. ● RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem 	<p>Concepts:</p> <ul style="list-style-type: none"> ● Graph an ordered pair ● Evaluating expressions using the order of operations ● Solve an equation ● Definition of absolute value ● Graph a function using a table of values ● How to solve an equation ● How to factor a polynomial ● How to apply order of operations to simplify an expression <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Evaluate an expression containing an absolute value expression ● Solve an equation containing an absolute value expression ● Graph an absolute value function ● Describe transformations of an absolute value function ● Solve a quadratic equation by the zero product property, the quadratic formula, or by graphing ● Solve real life word problems by modeling them with a quadratic equation ● Graph quadratic functions ● Describe transformations of quadratic functions ● Identify quadratic, linear, and exponential functions from equations, graphs, and tables

<ul style="list-style-type: none"> ● HSF-BF.A.1a Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. ● HSF-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$, $kf(x)$, $f(kx)$, and $f(x+k)$ for specific values of k (both positive and negative; find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them. ● HSF-LE.A.1a Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. ● HSA-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. ● HSA-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. ● HSA-REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. ● HSA-REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). 		
Unit 4 ALGEBRA I		
Stage 1 – Desired Results		
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES	

Curricular Framework MATH-Algebra I

<p>We will review the meaning of absolute value and expand it to develop the understanding that an equation can have more than one solution. We will learn to graph an absolute value function by identifying its vertex. We will also learn how to describe various transformations. We will cover how to solve quadratic equations as well as how to graph quadratic functions. We will make connections between related functions and equations and look at how a graph of a function can be used to find solutions. We will explore how changing constants in a quadratic function transform its graph. We will look at word problems that involve real world calculations dealing with landscaping, construction and how long it might take for something to hit the water/ground as well as the meaning of a maximum or minimum of a function.</p>	<ul style="list-style-type: none"> ● www.kutasoftware.com ● www.deltamath.com ● www.socrative.com ● www.bigideasmath.com
UNDERSTANDINGS	
<p>Students will understand that we can identify the type of function represented by graphing , looking at the equation in standard form, or by analysing the pattern found in the table. Students will understand that we can easily graph nonlinear functions by identifying key features of the equation (Ex- vertex, y-int, AOS,...)</p>	
Students will know...	Students will be able to...
<p><i>What content will be covered that students must master?</i></p> <ul style="list-style-type: none"> ● Graph an ordered pair ● Evaluating expressions using the order of operations ● Solve an equation ● Definition of absolute value ● Graph a function using a table of values ● How to solve an equation ● How to factor a polynomial ● How to apply order of operations to simplify an expression 	<p><i>What should students be able to accomplish to demonstrate understanding?</i></p> <ul style="list-style-type: none"> ● Evaluate an expression containing an absolute value expression ● Solve an equation containing an absolute value expression ● Graph an absolute value function ● Describe transformations of an absolute value function ● Solve a quadratic equation by the zero product property, the quadratic formula, or by graphing ● Solve real life word problems by modeling them with a quadratic equation ● Graph quadratic functions ● Describe transformations of quadratic functions ● Identify quadratic, linear, and exponential functions from equations, graphs, and tables
Stage 2 – Assessment Evidence	
<p>Performance Tasks: <u>Performance Tasks/Use of Technology</u></p> <ul style="list-style-type: none"> ● Homework/ Classwork ● Warm-Ups ● Exit Questions ● www.quizlet.live.com 	<p>Other Evidence: <u>Formative</u></p> <ul style="list-style-type: none"> ● Teacher observations ● Exit slips/ check for understanding ● Games ● Daily Classwork ● Pre-Assessment

Curricular Framework MATH-Algebra I

- www.math1forschool.com
- www.khanacademy.com
- www.desmos.com
- Class Participation
- www.kahoot.com
- Whiteboards/communicators
- www.quizizz.com
- Think-Pair-Share
- www.ixl.com
- Notebook Checks
- Classroom Games
- Self-assessment
- www.kutasoftware.com
- www.deltamath.com
- www.socrative.com
- www.bigideasmath.com

- Quizzes
- Student Activity Pages

Summative

- Quizzes
- Performance Task
- Unit Test
- Linkit Benchmark

Stage 3 – Learning Plan

- *We will begin this unit by exploring the characteristics of a quadratic function, introduced in the previous unit. Students will first identify the parts, then be able to graph the pieces to create the function given an equation. We will learn how to solve quadratic equations using various methods. We will then explore other nonlinear functions (absolute value and exponential) and their characteristics. We will discuss the differences and look for key identifying features of each type. Students will also learn how to graph each type as we progress through the unit. Students will be monitored throughout the unit to check for understanding with exit quizzes and homework assignments. We will finish the unit with a thorough review and a test.*
- *Hook the students through engaging and provocative entry points: thought-provoking and focusing experiences, issues, oddities, problems, and challenges that point toward essential questions, core ideas, and final performance tasks.*
- *Explore and Equip. 21st Century Learning and Interdisciplinary connections. Engage students in learning experiences that allow them to explore the big ideas and essential questions; that cause them to pursue leads or hunches, research and test ideas, try things out. Equip students for the final performances through guided instruction and coaching on needed skill and knowledge. Have them experience the ideas to make them real.*
- *Organize and sequence the learning for maximal engagement and effectiveness, given the desired results.*

Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

Gifted & Talented:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
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- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

Tier I:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources
- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review

- Vocabulary Support Glossary resources
- Mini-Assessments
- Game Closet
- Lesson Tutorials
- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
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- [Learning Ally](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)

Tier II:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

Tier III:

- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

ELL:

- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
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- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
- Student Journal available in Spanish.
- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

SPED:

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

A. Setting Accommodations**1. Administering the assessment:**

- individually in a separate room
- in a small group in a separate room
- in the resource room
- in a special education classroom
- at home or in a hospital (this will depend on the nature of the assessment task)

2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

B. Scheduling Accommodations

1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

C. Test Materials Modifications

1. Administering the large-print version of the test
2. Administering the Braille version of the test

D. Test Procedure Modifications

1. Administration modifications
 - a. reading directions aloud
 - b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
 - c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
 - d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
 - e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
 - f. repeating, clarifying, or rewording directions ONLY
 - g. providing written directions on a separate sheet or transparency
 - h. using an examiner who is familiar with the student
 - i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
 - j. providing manipulatives for math items e.g., number line, counting chips, abacus

2. Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device

- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet
- i. allowing separate additional continuation pages for writing tasks

504:

General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

Environmental Strategies

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

Organizational Strategies

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills
- Schedule before or after school tutoring/homework assistance

Behavioral Strategies

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)

- Establish a home/school communication system for behavior monitoring
- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
 - a) lecture plus overhead/board demonstration support
 - b) small groups required to produce a written product
 - c) large groups required to demonstrate a process
 - d) computer-assisted instruction
 - e) peer tutors or cross-age tutors
 - f) demonstrations, simulations
 - g) experiments
 - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts • Prepare advanced organizers/study guides for new material

Assignments

- Modify the amount of homework
- Use written directions to supplement oral directions

- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

Evaluation Methods

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

Curricular Framework MATH-Algebra I

Unit 5 ALGEBRA I		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> ● HSS-ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots) ● HSS-ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. ● HSS-ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). ● HSS-ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. ● 	<ul style="list-style-type: none"> ● WHST.11-12.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. ● RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. 	<p>Concepts:</p> <ul style="list-style-type: none"> ● How to calculate mean, median, and mode of a set of data ● How to display numerical data as a histogram and as a circle graph <p>Students will be able to:</p> <ul style="list-style-type: none"> ● Describe a data set by its measures of center and variation ● Compute standard deviation of a set of data ● Analyze box-and-whisker plots ● Analyze and compare the shapes of distributions ● Organize categories of data as two-way tables ● Choose a data display for a given set of data

Unit 5 ALGEBRA I

Stage 1 – Desired Results

UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES
<p>This unit expands upon students’ prior knowledge of measures of central tendency and explores various ways to organize and display data.</p>	<ul style="list-style-type: none"> ● www.kutasoftware.com ● www.deltamath.com ● www.socrative.com ● www.bigideasmath.com

UNDERSTANDINGS

Students will understand that we can analyze data by looking at the measures of central tendency. We can use these measures to create data displays.

Students will know...	Students will be able to...
<p><i>What content will be covered that students must master?</i></p> <ul style="list-style-type: none"> ● How to calculate mean, median, and mode of a set of data ● How to display numerical data as a histogram and as a circle graph 	<p><i>What should students be able to accomplish to demonstrate understanding?</i></p> <ul style="list-style-type: none"> ● Describe a data set by its measures of center and variation ● Compute standard deviation of a set of data

Curricular Framework MATH-Algebra I

	<ul style="list-style-type: none"> ● Analyze box-and-whisker plots ● Analyze and compare the shapes of distributions ● Organize categories of data as two-way tables ● Choose a data display for a given set of data
Stage 2 – Assessment Evidence	
<p>Performance Tasks: <u>Performance Tasks/Use of Technology</u></p> <ul style="list-style-type: none"> ● Homework/ Classwork ● Warm-Ups ● Exit Questions ● www.quizlet.live.com ● www.mathxlforschool.com ● www.khanacademy.com ● www.desmos.com ● Class Participation ● www.kahoot.com ● Whiteboards/communicators ● www.quizizz.com ● Think-Pair-Share ● www.ixl.com ● Notebook Checks ● Classroom Games ● Self-assessment ● www.kutasoftware.com ● www.deltamath.com ● www.socrative.com ● www.bigideasmath.com 	<p>Other Evidence: <u>Formative</u></p> <ul style="list-style-type: none"> ● Teacher observations ● Exit slips/ check for understanding ● Games ● Daily Classwork ● Pre-Assessment ● Quizzes ● Student Activity Pages <p><u>Summative</u></p> <ul style="list-style-type: none"> ● Quizzes ● Performance Task ● Unit Test ● Linkit Benchmark
Stage 3 – Learning Plan	
<p><i>• We will begin by identifying and calculating all of the measures of central tendency. Students will also be able to interpret the meaning of each in a given situation. We will then move into creating the various data displays (Box and Whisker Plots, Distributions, Two way Tables, etc). Students will then be able to use their knowledge of each type of display to determine which is most appropriate to use given a data set. Students will also be able to determine why a particular graph may be misleading and use this knowledge to find real world examples of such. Students will be monitored throughout the unit to check for understanding with exit quizzes and homework assignments. We will finish the unit with a thorough review and a test, and if time permits a project which relates misleading data to the real world.</i></p>	

- *Hook the student through engaging and provocative entry points: thought-provoking and focusing experiences, issues, oddities, problems, and challenges that point toward essential questions, core ideas, and final performance tasks.*
- *Explore and Equip. 21st Century Learning and Interdisciplinary connections. Engage students in learning experiences that allow them to explore the big ideas and essential questions; that cause them to pursue leads or hunches, research and test ideas, try things out. Equip students for the final performances through guided instruction and coaching on needed skill and knowledge. Have them experience the ideas to make them real.*
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Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

Gifted & Talented:

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- [Differentiation Strategies for Math](#)

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- [Homework Spot](#)
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Tier I:

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- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)

Tier II:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

Tier III:

- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

ELL:

- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
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- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

SPED:

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

A. Setting Accommodations

1. Administering the assessment:

- a. individually in a separate room
- b. in a small group in a separate room
- c. in the resource room
- d. in a special education classroom
- e. at home or in a hospital (this will depend on the nature of the assessment task)

2. Seating the student in the front of the room near the examiner or proctor

3. Seating the student facing the examiner or proctor

4. Providing special lighting

5. Providing special furniture e.g., desks, trays, carrels

B. Scheduling Accommodations

1. Adding time as needed

2. Providing frequent breaks

3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

C. Test Materials Modifications

1. Administering the large-print version of the test

2. Administering the Braille version of the test

D. Test Procedure Modifications

1. Administration modifications

a. reading directions aloud

b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task

c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order

d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages

e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows

f. repeating, clarifying, or rewording directions ONLY

- g. providing written directions on a separate sheet or transparency
- h. using an examiner who is familiar with the student
- i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
- j. providing manipulatives for math items e.g., number line, counting chips, abacus

2. Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet
- i. allowing separate additional continuation pages for writing tasks

504:

General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

Environmental Strategies

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

Organizational Strategies

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments

- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills
- Schedule before or after school tutoring/homework assistance

Behavioral Strategies

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)
- Establish a home/school communication system for behavior monitoring
- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
 - a) lecture plus overhead/board demonstration support
 - b) small groups required to produce a written product
 - c) large groups required to demonstrate a process
 - d) computer-assisted instruction
 - e) peer tutors or cross-age tutors
 - f) demonstrations, simulations
 - g) experiments
 - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring

- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts • Prepare advanced organizers/study guides for new material

Assignments

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

Evaluation Methods

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading