Winslow Township School District

Mathematics Curriculum – Algebra I

Unit 1

Overview	Standards for Mathematical Content		Unit Focus	Standards for Mathematical Practice
Unit 1 **Modeling with Linear Equations and Inequalities**	• N.Q.A.1 • N.Q.A.2 • N.Q.A.3 • A.REI.B.3 • A.REI.A.1 • A.CED.A.4 • A.SSE.A.1 • A.CED.A.1	• A.REI.A.1 • A.CED.A.2 • A.REI.D.10 • S.ID.B.6 • S.ID.C.7 • S.ID.C.8 • S.ID.C.9 • A.REI.D.11	• Reason quantitatively and use units to solve problems • Solve [linear] equations and inequalities in one variable • Understand solving equations as a process of reasoning and explain the reasoning • Create equations that describe numbers or relationships • Interpret the structure of expressions • Represent and solve equations graphically • Summarize, represent, and interpret data on quantitative variables. • Interpret linear models	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and 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.
Unit 1: Suggested Open Educational Resources	N.Q.A.1 Runners' World N.Q.A.2 Giving Raises N.Q.A.3 Calories in a Sports Drink A.REI.B.3, A.REI.A.1 Reasoning with linear inequalities A.CED.A.4 Equations and Formulas			

Major Supporting Additional (Identified by PARCC Model Content Frameworks).

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Curriculum Unit 1	Standards		Pacing	
			Days	Unit Days
Unit 1 **Modeling with Linear Equations and Inequalities**	• A.REI.B.3 • A.REI.A.1 • A.CED.A.4 • A.SSE.A.1 • A.CED.A.1 • S.ID.B.6 • S.ID.C.7 • S.ID.C.8 • S.ID.C.9	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 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. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R. Interpret expressions that represent a quantity in terms of its context. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear functions and quadratic functions, and simple rational and exponential functions. Represent data on a scatter plot, describe how the variables are related and use technology to fit a function to data. Interpret the slope, intercept, and correlation coefficient of a data set of a linear model; distinguish between correlation and causation.	17	45
	• N.Q.A.1 • N.Q.A.2 • N.Q.A.3	Solve multi-step problems, using units to guide the solution, interpreting units consistently in formulas and choosing an appropriate level of accuracy on measurement quantities. Develop descriptive models by defining appropriate quantities.	5	
	• A.CED.A.2 • A.REI.D.10 • A.REI.B.3	Create equations in two or more variables to represent relationships between quantities; Graph equations on coordinate axes with labels and scales. 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). Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	13	
	• A.REI.D.11	Explain why the solutions of the equation f(x) = g(x) are the x-coordinates of the points where the graphs of the linear equations y=f(x) and y=g(x) intersect. ** function notation is not introduced here Find approximate solutions of f(x) = g(x), where f(x) and g(x) are linear functions, by making a table of values, using technology to graph and finding successive approximations.	5	
		Assessment, Re-teach and Extension	5	

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Unit 1 Algebra I		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
• N.Q.A.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. • N.Q.A.2. Define appropriate quantities for the purpose of descriptive modeling. • N.Q.A.3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): • Units are associated with variables in expressions and equations in context. • Quantities may be used to model attributes of real world situations. • Measurement tools have an inherent amount of uncertainty in measurement. Students are able to: • use units to understand real world problems. • use units to guide the solution of multi-step real world problems (e.g. dimensional analysis). • choose and interpret units while using formulas to solve problems. • identify and define appropriate quantities for descriptive modeling. • choose a level of accuracy when reporting measurement quantities. Learning Goal 1: Solve multi-step problems, using units to guide the solution, interpreting units consistently in formulas and choosing an appropriate level of accuracy on measurement quantities. Develop descriptive models by defining appropriate quantities.
• A.REI.B.3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. • A.REI.A.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. • A.CED.A.4. Rearrange formulas to highlight a quantity of interest, using	MP 2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): • Literal equations can be rearranged using the properties of equality. Students are able to: • solve linear equations with coefficients represented by letters in one variable. • use the properties of equality to justify steps in solving linear equations. • solve linear inequalities in one variable. • rearrange linear formulas and literal equations, isolating a specific variable. Learning Goal 2. Solve linear equations and inequalities in one variable (including literal equations); justify each step in the process.

the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R.		
• A.SSE.A.1. Interpret expressions that represent a quantity in terms of its context. A.SSE.A.1a. Interpret parts of an expression, such as terms, factors, and coefficients.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively.	Concept(s): No new concept(s) introduced Students are able to: • identify different parts of an expression, including terms, factors and constants. • explain the meaning of parts of an expression in context. Learning Goal 3: Interpret terms, factors, coefficients, and other parts of expressions in terms of a context.
• A.CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear functions and quadratic functions, and simple rational and exponential functions. • A.REI.A.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.	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concept(s): • Equations and inequalities describe relationships. • Equations can represent real-world and mathematical problems. Students are able to: • identify and describe relationships between quantities in word problems. • create linear equations in one variable. • create linear inequalities in one variable. • use equations and inequalities to solve real world problems. • explain each step in the solution process. Learning Goal 4: Create linear equations and inequalities in one variable and use them in contextual situations to solve problems. Justify each step in the process and the solution.
• A.CED.A.2. Create equations in two or more variables to represent relationships between quantities; Graph equations on coordinate axes with labels and scales. • N.Q.A.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	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concept(s): • Equations represent quantitative relationships. Students are able to: • create linear equations in two variables, including those from a context. • select appropriate scales for constructing a graph. • interpret the origin in graphs. • graph equations on coordinate axes, including labels and scales. • identify and describe the solutions in the graph of an equation.

interpret the scale and the origin in graphs and data displays. • A.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). [Focus on linear equations.]		Learning Goal 5: Create linear equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
• S.ID.B.6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. S.ID.B.6a. Fit a function to the data (including the use of technology); use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. S.ID.B.6c. Fit a linear function for a scatter plot that suggests a linear association. • S.ID.C.7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. • S.ID.C.8. Compute (using technology) and interpret the correlation coefficient of a linear fit. • S.ID.C.9. Distinguish between correlation and causation.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): • Scatter plots represent the relationship between two variables. • Scatter plots can be used to determine the nature of the association between the variables. • Linear models may be developed by fitting a linear function to approximately linear data. • The correlation coefficient represents the strength of a linear association. Students are able to: • distinguish linear models representing approximately linear data from linear. equations representing "perfectly" linear relationships. • create a scatter plot and sketch a line of best fit. • fit a linear function to data using technology. • solve problems using prediction equations. • interpret the slope and the intercepts of the linear model in context. • determine the correlation coefficient for the linear model using technology. • determine the direction and strength of the linear association between two variables. Learning Goal 6: Represent data on a scatter plot, describe how the variables are related and use technology to fit a function to data. Learning Goal 7: Interpret the slope, intercept, and correlation coefficient of a data set of a linear model; distinguish between correlation and causation.

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• A.REI.D.11. Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.* [Focus on linear equations.]	MP.1 Make sense of problems and persevere in solving them. MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically.	Concept(s): • y = f(x), y=g(x) represent a system of equations. • Systems of equations can be solved graphically (8.EE.C.8). Students are able to: • explain the relationship between the x-coordinate of a point of intersection and the solution to the equation f(x) = g(x) for linear equations y = f(x) and y = g(x). • find approximate solutions to the system by making a table of values, graphing, and finding successive approximations. Learning Goal 8: Explain why the solutions of the equation f(x) = g(x) are the x-coordinates of the points where the graphs of the linear equations y=f(x) and y=g(x) intersect. ** function notation is not introduced here Learning Goal 9: Find approximate solutions of f(x) = g(x), where f(x) and g(x) are linear functions, by making a table of values, using technology to graph and finding successive approximations.

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School/District Formative Assessment Plan	**School/District Summative Assessment Plan**
Pre-Assessment, Quizzes Exit Tickets Daily Monitoring Linkit!	Unit Benchmark Linkit! PARCC Diagnostic

Focus Mathematical Concepts

Prerequisite skills:

- Familiarity with the order of operations, exponents, variables, coefficients, functions, domain, quadrants, x-axis, y-axis, line, fractions, integers, equations, rational numbers, irrational numbers, real numbers, expressions by utilizing sentence stems, language frames, visuals, and cloze reading.
- Experience in problem solving, reading and communicating, estimating and verifying answers and solutions, logical reasoning, and using technology.
- Students must be able to use the language of mathematics orally and in writing to explain the thinking processes, mathematical concepts and solution strategies they use in solving problems.
- Students, at least informally, should become familiar with examples of inductive and deductive reasoning.
- Use graphs of experiences that are familiar to students to increase accessibility and supports understanding and interpretation of proportional relationship.
- Students are expected to both sketch and interpret graphs including scatter plot.
- Students create an equation with given information from a table, graph, or problem situation.
- Engage students in interpreting slope and intercept using real world applications (e.g. bivariate data).

Common Misconceptions:

N.Q.A.1 & N.Q.A.2 & N.Q.A.3

Students may not realize the importance of the units' conversions in conjunction with the computation when solving problems involving measurements. Students often have difficulty understanding how ratios expressed in different units can be equal to one. For example, 5280ft/1mile is simply one, and it is permissible to multiply by that ratio. Students need to make sure to put the quantities in the numerator or denominator so that the terms can cancel appropriately. Since today's calculating devices often display 8 to 10 decimal places, students frequently express answers to a much greater degree of precision than the required.

A.REI.B.3 & A.CED.A.4

Some students may believe that for equation containing fractions only on one side, it requires "clearing fractions' (the use of multiplication) only on that side of the equation. To address this misconception, start by demonstrating the solution methods for equations similar to $1/4x + 1/5 x + 1/6x + 46 = x$ and stress that the Multiplication Property of Equality is applied to both sides, which are multiplied by 60.

Students may confuse the rule of changing a sign of an inequality when multiplying or dividing by a negative number with changing the sign of an inequality when one or two sides of the inequality become negative (for ex., $3x > -15$ or $x < -5$).

Some students may believe that subscripts can be combined as $b_1 + b_2 = b_3$ and the sum of different variables d and D is 2D ($d + D = 2D$).

A.SSE.A.1

Students may believe that the use of algebraic expressions is merely the abstract manipulation of symbols. Use of real-world context examples to demonstrate the meaning of the parts of algebraic expressions is needed to counter this misconception. Students may also believe that an expression cannot be factored because it does not fit into a form they recognize. They need help with reorganizing the terms until structures become evident. Students will often combine terms that are not like terms. For example, $2 + 3x = 5x$ or $3x + 2y = 5xy$. Students sometimes forget the coefficient of 1 when adding like terms. For example, $x + 2x + 3x = 5x$ rather than $6x$. Students will change the degree of the variable when adding/subtracting like terms. For example, $2x + 3x = 5x^2$ rather than $5x$. Students will forget to distribute to all terms when multiplying. For example, $6(2x + 1) = 12x + 1$ rather than $12x + 6$. Students may not follow the Order of Operations when simplifying expressions. For example, $4x^2$ when $x = 3$ may be incorrectly evaluated as $4 \cdot 3^2 = 122 = 144$, rather than $4 \cdot 9 = 36$. Another common mistake occurs when the distributive property should be used prior to adding/subtracting. For example, $2 + 3(x–1)$ incorrectly becomes $5(x–1) = 5x–5$ instead of $2 + 3(x–1) = 2 + 3x–3 = 3x–1$. Students fail to use the property of exponents correctly when using the distributive property. For example, $3x(2x–1) = 6x–3x = 3x$ instead of simplifying as $3x(2x–1) = 6x^2–3x$. Students fail to understand the structure of expressions. For example, they will write $4x$ when $x = 3$ is 43 instead of $4x = 4 \cdot x$ so when $x = 3$, $4x = 4 \cdot 3 = 12$. In addition, students commonly misevaluate $–3^2 = 9$ rather than $–3^2 = –9$. Students routinely see $–3^2$ as the same as $(–3)^2 = 9$. A method that may clear up the misconception is to have students rewrite as $–x^2 = –1 \cdot x^2$ so they know to apply the exponent before the multiplication of $–1$. Students frequently attempt to "solve" expressions. Many students add "= 0" to an expression they are asked to simplify. Students need to understand the difference between an equation and an expression. Students commonly confuse the properties of exponents, specifically the product of powers property with the power of a power property. For example, students will often simplify $(x^2)^3 = x^5$ instead of x^6. Students will incorrectly translate expressions that contain a difference of terms. For example, 8 less than 5 times a number is often incorrectly translated as $8 –5n$ rather than $5n–8$.

A.CED.A.1 & A.CED.A.2

Students may believe that equations of linear, quadratic and other functions are abstract and exist only " in a math book," without seeing the usefulness of these functions as modeling real-world phenomena.

Additionally, they believe that the labels and scales on a graph are not important and can be assumed by a reader, and that it is always necessary to use the entire graph of a function when solving a problem that uses that function as its model.

Students may interchange slope and y-intercept when creating equations. For example, a taxi cab costs $4 for a dropped flag and charges $2 per mile. Students may fail to see that $2 is a rate of change and is slope while the $4 is the starting cost and incorrectly write the equation as $y = 4x + 2$ instead of $y = 2x + 4$.

Given a graph of a line, students use the x-intercept for b instead of the y-intercept.

Given a graph, students incorrectly compute slope as run over rise rather than rise over run. For example, they will compute slope with the change in x over the change in y.

Students do not know when to include the " or equal to" bar when translating the graph of an inequality.

Students do not correctly identify whether a situation should be represented by a linear, quadratic, or exponential function.

Students often do not understand what the variables represent. For example, if the height *h* in feet of a piece of lava *t* seconds after it is ejected from a volcano is given by

$h(t) = -16t^2 + 64t + 936$ and the student is asked to find the time it takes for the piece of lava to hit the ground, the student will have difficulties understanding that h = 0 at the ground and that they need to solve for t.

A.REI.A.1

Students may believe that solving an equation such as 3x+ 1 = 7 involves "only removing the 1," failing to realize that the equation 1 = 1 is being subtracted to produce the next step. Additionally, students may believe that all solutions to radical and rational equations are viable, without recognizing that there are times when extraneous solutions are generated and have to be eliminated.

A.REI.D.10 & A.REI.D.11

Students may believe that the graph of a function is simply a line or curve "connecting the dots," without recognizing that the graph represents all solutions to the equation. Students may also believe that graphing linear and other functions is an isolated skill, not realizing that multiple graphs can be drawn to solve equations involving those functions. Additionally, students may believe that two-variable inequalities have no application in the real world. Teachers can consider business related problems (e.g., linear programming applications) to engage students in discussions of how the inequalities are derived and how the feasible set includes all the points that satisfy the conditions stated in the inequalities.

S.ID.B.6

Students may believe:

That a 45 degree line in the scatterplot of two numerical variables always indicates a slope of 1 which is the case only when the two variables have the same scaling.

The residual plots in the quantitative case should show a pattern of some sort. Just the opposite is the case.

S.ID.C.7 & S.ID.C.8 & S.ID.C.9

Students may believe:

That a 45 degree line in the scatterplot of two numerical variables always indicates a slope of 1 which is the case only when the two variables have the same scaling. Because the scaling for many real-world situations varies greatly, the students need to be given opportunity to compare graphs of differing scale. Asking students questions like "What would this graph look like with a different scale or using this scale?", is essential in addressing this misconception.

That when two quantitative variables are related, i.e., correlated, that one causes the other to occur. Causation is not necessarily the case. For example, at a theme park, the daily temperature and number of bottles of water sold are demonstrably correlated, but an increase in the number of bottles of water sold does not cause the day's temperature to rise or fall.

Fluency Recommendations:

Algebra I students become fluent in solving characteristic problems involving the analytic geometry of lines, such as writing down the equation of a line given a point and a slope. Such fluency can support them in solving less routine mathematical problems involving linearity, as well as in modeling linear phenomena (including modeling using systems of linear inequalities in two variables).

A-APR.A.1 Fluency in adding, subtracting, and multiplying polynomials supports students throughout their work in algebra, as well as in their symbolic work with functions. Manipulation can be more mindful when it is fluent.

A-SSE.A.1b Fluency in transforming expressions and chunking (seeing parts of an expression as a single object) is essential in factoring, completing the square, and other mindful algebraic calculations.

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District/School Tasks	District/School Primary and Supplementary Resources and Technology Integration
PARCC Released Items **http://www.parcc-assessment.org/released-items** **NJDOE Digital Item Library** **https://nj.digitalitemlibrary.com/home** **NJSLA Mathematics Evidence Statements** **https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491** **LinkIt! Form A, B, & C**	**Textbook** **HS Flip Book:** http://community.ksde.org/Default.aspx?tabid=5646 **IXL** https://www.ixl.com/ **Khan Academy** https://www.khanacademy.org/ **North Carolina Dept of Ed. Wikispaces:** http://maccss.ncdpi.wikispaces.net/High+School **NJSLA Resources:** https://nj.mypearsonsupport.com/practice-tests/math/ **101 Math Discourse Questions:** http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf **Asking Effective Questions** http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf **Diversity, Equity & Inclusion Educational Resources** https://www.nj.gov/education/standards/dei/
Instructional Best Practices and Exemplars	
1. Identifying similarities and differences 2. Summarizing and note taking 3. Reinforcing effort and providing recognition 4. Homework and practice 5. Nonlinguistic representations	6. Cooperative learning 7. Setting objectives and providing feedback 8. Generating and testing hypotheses 9. Cues, questions, and advance organizers 10. Manage response rate

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Vocabulary	
N.Q.A.1; N.Q.A.2; N.Q.A.3 square _____, cubic _____, axis, scale, origin, *y*-axis, *x*-axis, quantity, accuracy **A.REI.B.3** equation, equality, inequality, solution, not equal to, less than, less than or equal to, great than, greater than or equal to, solution, no solution, infinite **A.REI.A.1** equal, equality **A.SSE.A.1** coefficient, constant, variable, expression, term, factor, like terms, distributive property **A.CED.A.1; A.CED.A.2; A.CED.A.4**	rule, equation, inequality **A.REI.D.10; A.REI.D.11** solution, boundary line **S.ID.B.6** scatter plot, constant, coefficient, residual, linear regression **S.ID.C.7; S.ID.C.8; S.ID.C.9** Slope, linear model, intercept, correlation coefficient, independent variable, dependent variable

9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training & 9.4 Life Literacies and Key Skills

9.1.12.CDM.2: Compare and contrast the advantages and disadvantages of various types of mortgages.
9.1.12.CDM.6: Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit. (e.g., student loans, credit cards, auto loans, mortgages, etc.).
9.1.12.CDM.7: Calculate a mortgage payment based on type of loan, down payment, credit score, and loan interest rate.
9.1.12.CDM.8: Compare and compute interest and compound interest and develop an amortization table using business tools.
9.1.12.CP.5: Create a plan to improve and maintain an excellent credit rating.
9.1.12.CP.6: Explain the effect of debt on a person's net worth.
9.1.12.CP.9: Analyze the information contained in a credit report, how scores are calculated and used, and explain the importance of disputing inaccurate entries.
9.1.12.PB.6: Describe and calculate interest and fees that are applied to various forms of spending, debt and saving.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.

The implementation of the 21st Century skills and standards for students of the Winslow Township District is infused in an interdisciplinary format in a variety of curriculum areas that include, English language Arts, Mathematics, School Guidance, Social Studies, Technology, Visual and Performing Arts, Science, Physical Education and Health, and World Language.

Additional opportunities to address 9.1, 9.2 & 9.4:

Philadelphia Mint

https://www.usmint.gov/learn/kids/resources/educational-standards

Different ways to teach Financial Literacy.

https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/

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Suggested Modifications for Special Education/504	
Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities. Accommodations will be made for those students who need extra time to complete assignments. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.	
☐ Provide the opportunity to re-take tests	☐ Individual Intervention/Remediation
☐Modify activities/assignments/projects/assessments	☐ Additional Support Materials
☐ Breakdown activities/assignments/projects/assessments into manageable units	☐ Guided Notes
☐Additional time to complete activities/assignments/projects/assessments	☐ Graphic Organizers
☐ Provide an option for alternative activities/assignments/projects/assessments	☐ Adjust Pacing of Content
☐ Modify Content	☐ Increase one on one time
☐ Modify Amount	☐ Peer Support
☐ Small Group Intervention/Remediation	☐ Other Modifications for Special Education:
Suggested Modifications for At-Risk Students	
Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations	
☐ Provide the opportunity to re-take tests	☐ Modify Content
☐ Increase one on one time	☐ Modify Amount
☐ Oral prompts can be given	☐ Adjust Pacing of Content
☐ Using visual demonstrations, illustrations, and models	☐ Small Group Intervention/Remediation
☐ Give directions/instructions verbally and in simple written format	☐ Individual Intervention/Remediation
☐ Peer Support	☐ Additional Support Materials
☐ Modify activities/assignments/projects/assessments	☐ Guided Notes
☐ Additional time to complete activities/assignments/projects/assessments	☐ Graphic Organizers
☐ Provide an option for alternative activities/assignments/projects/assessments	☐ Other Modifications for Students At-Risk:

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Suggested for English Language Learners	Suggested Modifications for Gifted Students
All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors ☐ Grades 9-12 WIDA Can Do Descriptors: ☐ Listening ☐ Speaking ☐ Reading ☐ Writing ☐ Oral Language Students will be provided with accommodations and modifications that may include: • Relate to and identify commonalities in mathematics studies in student's home country • Assist with organization • Use of computer • Emphasize/highlight key concepts • Teacher Modeling • Peer Modeling • Label Classroom Materials - Word Walls	Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic. • Raise levels of intellectual demands • Require higher order thinking, communication, and leadership skills • Differentiate content, process, or product according to student's readiness, interests, and/or learning styles • Provide higher level texts • Expand use of open-ended, abstract questions • Critical and creative thinking activities that provide an emphasis on research and in-depth study • Enrichment Activities/Project-Based Learning/ Independent Study Additional Strategies may be located at the links: ❖ Gifted Programming Standards ❖ Webb's Depth of Knowledge Levels and/or Revised Bloom's Taxonomy ❖ REVISED Bloom's Taxonomy Action Verbs
Suggested Activities	
☐ Do Now/Warm-Up ☐ Whole Group ☐ Small Groups ☐ Guided Practice ☐ Independent Practice	☐ Centers ☐ Intervention/Remediation ☐ Projects ☐Academic Games ☐ Other Suggested Activities:

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Unit 1

Interdisciplinary Connections
Big Ideas Real-Life STEM Videos and Performance Tasks **Interdisciplinary Connections: ELA** **NJSLSA.R1**. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. **NJSLSA.W2.** Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content **NJSLSA.L1**. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking **SL.9-10.4:** Present information, findings and supporting evidence clearly, concisely and logically. The content, organization, development and style are appropriate to task, purpose and audience. **NJSLSA.L6:** Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.
Integration of Computer Science and Design Thinking NJSLS 8
8.1.12.AP.1: Design algorithms to solve computational problems using a combination of original and existing algorithms. 8.1.12.AP.2: Create generalized computational solutions using collections instead of repeatedly using simple variables. 8.1.12.AP.8: Evaluate and refine computational artifacts to make them more usable and accessible. 8.1.12.AP.5: Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects. 8.1.12.DA.1: Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change. 8.2.12.ETW.2: Synthesize and analyze data collected to monitor the effects of a technological product or system on the environment. • 8.2.12.ETW.3: Identify a complex, global environmental or climate change issue, develop a systemic plan of investigation, and propose an innovative sustainable solution.