Allamuchy Township School District
Allamuchy, NJ

Algebra
Grade 8

CURRICULUM GUIDE

August 2017

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Developed by:
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This curriculum may be modified through varying techniques, strategies and materials, as per an individual student's Individualized Education Plan (IEP).

Approved by the Allamuchy Board of Education
At the regular meeting held on August 28, 2017
And
Aligned with the New Jersey Core Curriculum Content Standards
And Common Core Content Standards

Table of Contents

Philosophy and Rationale

This School Level Math Curriculum was designed to be consistent with the Common Core Standards for Mathematics and the NJDOE Model Curriculum Unit format. The content of each course; Grade 6 Math, Grade 7 Math, Grade 7 Accelerated Math, Grade 8 Math and Algebra 1 was designed in collaboration with representatives from the middle schools within the Hackettstown sending district cluster. The standards included in each course are organized by unit as recommended by the NJDOE. The curriculum provides a correlation between standards, officially adopted textbook resources and sample assessment items for each student learning objective.

Mission Statement

The mission of the Allamuchy Township District, in partnership with the larger community, is to provide a comprehensive, caring program for all of our students which:

*Nurtures the unique talents and interests of each individual
*Supports social responsibility and a love of learning
*Embraces the total development of each student intellectually, morally and physically
*Develops confidence, creativity and skills necessary to face the challenges of a technologically advanced and ever-changing society
*Promotes a culture of mutual respect with all other community members
*Supports the attainment of the New Jersey Core Curriculum Content Standards

The District seeks to exceed objective standards of achievement set by both the State and Federal government and to provide an educational experience beyond the boundaries established by the Core Curriculum Standards.

Scope and Sequence

Stage 1: Desired Results

Unit 1

Topic Relationships Between Quantities and Reasoning with Equations

Content Standards N.Q.1-3, A.SSE.1, A.CED.1-3, A.REI.1, 3

Essential Questions

1. What are some ways to represent, describe, and analyze patterns that occur in our world?
2. How can we use mathematical models to describe the change over time?

Enduring Understandings

1. Variables are symbols that take the place of numbers or a range of numbers; they have different meanings depending on how they are being used
2. Algebraic representations can be used to generalize patterns and relationships
3. Rules of arithmetic and algebra can be used together with the concept of equivalence to transform equations so solutions can be found to solve problems
4. In a proportion, the ratio of two quantities remains constant
5. Relationships and functions can be used in real context

Knowledge and Skills (SWBAT embedded course proficiencies)

1. Solve multi-step problems that can be represented algebraically with accurate and appropriately defined units, scales, and models (such as graphs, tables, and data displays).
2. Interpret terms, factors, coefficients, and expressions (including complex linear and exponential expressions) in terms of context.
3. Solve linear equations and inequalities in one variable (including literal equations). Justify each step in the process and solution.
4. Create linear equations and inequalities in one variable and use them to solve problems. Justify each step in the process and the solution.
5. Create linear equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
6. Model and describe constraints with linear equations and inequalities and systems of equations and/or inequalities to determine if solutions are viable or non-viable.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

1. Solve the temperature formula: $C=5/9(F-32)$ for F.
2. Consider the expression: $4v^{11}-v^{12}$. Identify the degree and classify it by the number of terms.
3. Solve the equation: $-2x + 10 = -3(x+5)$. Justify each step in the process.
4. On a train, carry-on bags can weigh no more than 50 lbs. Your bag weighs 34.8 lbs. Write and solve an inequality that represents the amount you can add to your bag.
5. Boat rental is \$250/day. Gear is \$50/day. Five friends rent a boat for x days and gear for y days. The total spent is \$1000. Write and graph an equation to represent this situation.
6. You can spend at most \$21 on fruit. Blueberries cost \$4/lb and strawberries cost \$3/lb. You need at least 3 lbs of fruit. Is it possible to buy 4 lb of blueberries and 2 lb of strawberries. Explain.

Assessment: Assessments may include, but are not limited to homework, class discussions, internet practice utilities (such as IXL.com) and mid unit quizzes as forms of formative assessment. End of unit tests and projects are the primary form of summative assessment.

Stage 3: Learning Plan

- Assessing prior knowledge: Students will be given a pre-test to determine their knowledge of the benchmarks of Unit 1.

- Sample hook: Students will decide which Bed, Bath, and Beyond coupon they will apply to a $15 purchase. The purpose of this activity is to illustrate that some discounts may save more money, for example, a $5 off coupon versus a 20% off coupon.

The lessons will incorporate solving or manipulating simple equations in order to come up with a solution. We will expand on previously learned material by giving students contextual word problems that cause students to write equations and apply their skills. Students will then be given an opportunity to come up with their own stories and translate those stories into mathematical models. Once students have mastered one variable equations, we will re-introduce the Bed, Bath, and Beyond problem that will include two variables.

Integration of 21st Century Skills

Be Self-directed Learners

- Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
- Demonstrate initiative to advance skill levels towards a professional level
- Demonstrate commitment to learning as a lifelong process
- Reflect critically on past experiences in order to inform future progress
- Activity: Students will compose a table for D = Rate Time word problems. They will write sentences explaining the validity of their answers and applying the word problems to real life activities.

Produce Results

- Demonstrate additional attributes associated with producing high quality products including the abilities to:
  - Work positively and ethically
  - Manage time and projects effectively
  - Multi-task
  - Participate actively, as well as be reliable and punctual
  - Present oneself professionally and with proper etiquette
  - Collaborate and cooperate effectively with teams
  - Respect and appreciate team diversity
  - Be accountable for results
- Sample activity: Students will complete a walk-around activity in pairs. Students will solve equations and search the room for the answer. If students complete all of the equations correctly and check their answers, they will arrive back at their original problem.

Time Allotment

Resources Big Ideas Math

Chapter 1, Lessons 1-4
Chapter 2, Lessons 1, 3-7
Chapter 3, Lessons 1-4
Chapter 4, Lessons 1-5
Chapter 6, Lessons 2, 4-6
Chapter 7, Lessons 1, 3-7
Chapter 8, Lessons 1
Chapter 9, Lessons 1
Chapter 10, Lessons 1, 2
Chapter 11, Lessons 2, 7
Chapter 12, Lessons 5

Technology: Online Graphing Utility
SmartBoard

Stage 1: Desired Results

Unit 2

Topic Linear Equations

Content Standards A.REI.5-6, 10-12
F.IF.1-3, 5, 7, 9

Essential Questions

1. What is a solution set and how is it used to represent multiple solutions?
2. How do you represent multiple solutions?
3. What does it mean for things to be unequal?
4. How can we use mathematical language to describe non-linear change?
5. How can we use technology to analyze, graph, solve, and apply quadratic functions?

Enduring Understandings

1. Relationships and functions can be used in real context
2. In a functional relationship, one variable is defined in terms of the other variable
3. Linear inequalities are similar to linear equations, but the difference is the infinite amount of solutions
4. Systems of equations can be used to solve real-life situations
5. Mathematical models can be used to describe physical relationships; these relationships are often non-linear
6. Mathematical models can be used to describe physical relationships. Graphs, tables, and equations are alternative ways for depicting and analyzing patterns of non-linear change

Knowledge and Skills (SWBAT embedded course proficiencies)

1. Solve systems of linear equations in two variables graphically and algebraically. *Include solutions that have been found by replacing one equation by the sum of that equation and a multiple of the other.*
2. Find approximate solutions of linear equations by making a table of values, using technology to graph and successive approximations.
3. Graph equations, inequalities, and systems of inequalities in two variables and explain that the solution to an equation is all points along the curve, the solution to a system of linear functions is the point of intersection, and the solution to a system of inequalities is the intersection of the corresponding half-planes.
4. Explain and interpret the definition of functions including domain and range and how they are related; correctly use function notation in a context and evaluate functions for inputs and their corresponding outputs.
5. Write a function for a geometric sequence defined recursively, whose domain is a subset of the integers.
6. Graph functions by hand (in simple cases) and with technology (in complex cases) to describe linear relationships between two quantities and identify, describe, and compare domain and other key features in one or multiple representations
7. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

1. Solve this system of linear equations graphically AND algebraically:

$$x - y = 7$$
$$0.5x + y = 5$$

2. Use a table of values to approximate the solution, then solve using a graphing calculator. You and a friend are in a canoe race. He is 1/2 in front of you and paddling 3 mph. You paddle 3.4 mph. How long will it take you to catch up?
3. Graph the system of inequalities. Describe the solution set.

$$y \leq 3$$
$$-x + y > 2$$

4. Regarding the equation $y = 6x + 3$:
   a) determine whether it is a function
   b) Find 3 domain values and their corresponding range values
5. Write a function for the sequence: 1600, -400, 100, -25, 6.25,…
6. Graph $f(x) = |-x + 4|$ Describe its domain, range. Compare it to $g(x) = -x + 4$
7. Graph $f(x) = |4x|$. Compare it to the graph of $g(x) = |4x - 2|$. Describe their domains and ranges.

Assessment: Assessments may include, but are not limited to homework, class discussions, internet practice utilities (such as IXL.com) and mid unit quizzes as forms of formative assessment. End of unit tests and projects are the primary form of summative assessment.

Stage 3: Learning Plan

-Assessing prior knowledge: Students will be given a pre-test of their knowledge of the benchmarks of Unit 2.

Students will now use their knowledge from Unit 1 to work with multiple two variable equations, inequalities, and absolute value equations. We will discover the possible solutions to systems and understand why there may be one, none or many solutions. Again, we will include word problems to help the students visualize real life scenarios.

Be Self-directed Learners

- Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
- Demonstrate initiative to advance skill levels towards a professional level
- Demonstrate commitment to learning as a lifelong process
- Reflect critically on past experiences in order to inform future progress
- Activity: An analysis of heating system options – individual project on system of equations. Students will take the role of a homeowner to determine which system of heating their house is cheaper over 40 years.

Create Media Products

- Understand and utilize the most appropriate media creation tools, characteristics and conventions
- Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multicultural environments

- Activity: Print shop – students will solve a non-routine problem using a variety of algebra skills and present their solutions to the class using PowerPoint, smart software, or other various forms of technology.

Time Allotment

Resources Big Ideas Math

Chapter 2, Lessons 1, 3-4, 6
Chapter 3, Lessons 5
Chapter 4, Lessons 1-5
Chapter 5, Lessons 1, 2, 4, 6
Chapter 6, Lessons 4-7
Chapter 8, Lessons 1, 4 , 5
Chapter 9, Lessons 1, 5
Chapter 10, Lessons 1
Chapter 11, Lessons 1-2

Technology: Online Graphing Utility
SmartBoard

Stage 1: Desired Results

Unit 3

Topic Expressions and Equations

Content Standards A.SSE.1-3
A.APR.1
F.BF.2
A.CED.1, 2, 4
A.REI.4

Essential Questions

1. How many solutions does a linear equation with two variables have?
2. How do you graph the solutions of a linear equation in two variables?
3. What is a system of linear equations and how do you solve it?
4. What does it mean when the system does not have a single solution?
5. What is slope and how is it related to solutions of a system of linear equations?
6. How do you solve and graph a linear inequality with one or two variables?
7. How do you solve and graph compound inequalities and inequalities containing absolute value?
8. What does it mean if two lines intersect?
9. What method would be most appropriate to solve the system of equations?
10. What is the slope of the line?
11. What are x & y intercepts and how do you find them?
12. Is the solution to a system of equations reasonable?
13. Does the system have one, no or infinitely many solutions?
14. How can you recognize parallel or perpendicular lines without graphing them?
15. How do you solve and graph linear inequalities with one or two variables?
16. How do you solve and graph inequalities involving absolute value?
17. How do you solve a system of inequalities with two variables?

Enduring Understandings

1. Graphing linear equations in two variables is an essential algebra skill. Strategies of solving and graphing are used with all kinds of situations.
2. Graphing linear inequalities in one or two variables is an essential algebra skill. Strategies of solving and graphing are used with all kinds of situations.
3. Solving systems of equations is an essential algebra skill. Strategies of solving are used with all kinds of equations.
4. Linear Equations in two variables have infinitely many solutions which can be graphed on the coordinate plane.
5. Systems of linear equations can be solved by substitution, elimination, and other methods.
6. Linear equations can have zero, one, or two solutions.
7. Linear inequalities have many solutions; they need to be shown on a graph.
8. Absolute value inequalities create combined inequalities.

Knowledge and Skills (SWBAT embedded course proficiencies)

1. Interpret parts of expressions in terms of context including those that represent square and cube roots; use the structure of an expression to identify ways to rewrite it.
2. Manipulate expressions using factoring, completing the square and properties of exponents to produce equivalent forms that highlight particular properties such as the zeros or the maximum or minimum value of the function.
3. Perform addition, subtraction and multiplication with polynomials and relate it to arithmetic operations with integers.
4. Write linear and exponential functions (e.g. growth/decay and arithmetic and geometric sequences) from graphs, tables, or a description of the relationship, recursively and with an explicit formula, and describe how quantities increase linearly and exponentially over equal intervals.
5. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, simple rational and exponential functions and highlighting a quantity of interest in a formula.*
6. Create linear and quadratic equations that represent a relationship between two or more variables. Graph equations on the coordinate axes with labels and scale.
7. Derive the quadratic formula by completing the square and recognize when there are no real solutions.
8. Solve quadratic equations in one variable using a variety of methods [including inspection (e.g. $x^2 = 81$), factoring, completing the square, and the quadratic formula].

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

1. Identify the degree and classify the polynomial by the number of terms: $-9 + d^2 - 3d$ Write it in standard form.
2. Factor and solve the equation: $v^2 + 3v - 4 = 0$
3. Perform the following operations: $(2x^2 +5)+(-x^2+4)$; $(d-2)(d-5)$; $(q-2)^2$
4. Write the next three terms in the sequence, then, write an function for the sequence. 768, 192, 48, 12…

5. Car A costs $15 plus $0.50 per mile driven. Car B: $25 plus $0.25 per mile. Write an equation to find the number of miles you must drive to have the same cost for each car rental.
6. Graph the function:
   $y= 3/4\ x^2 -2$
7. Derive the quadratic formula by completing the square. When does a quadratic function have no real solutions?
8. Solve the quadratic equation by completing the square: $2x^2 - 8x = 10$
   Solve using the quadratic formula: $2x^2-6x+5=0$

Assessment: Assessments may include, but are not limited to homework, class discussions, internet practice utilities (such as IXL.com) and mid unit quizzes as forms of formative assessment. End of unit tests and projects are the primary form of summative assessment.

Stage 3: Learning Plan

-Assessing prior knowledge: Students will be given a pre-test of their knowledge of the benchmarks of Unit 3.

Students will now use their knowledge from Unit 1 and 2 to work with multiple two variable equations, inequalities, and absolute value equations. We will discover the possible solutions to systems and understand why there may be one, none or many solutions. Again, we will include word problems to help the students visualize real life scenarios.

Be Self-directed Learners

- Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
- Demonstrate initiative to advance skill levels towards a professional level
- Demonstrate commitment to learning as a lifelong process
- Reflect critically on past experiences in order to inform future progress

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Create Media Products

- Understand and utilize the most appropriate media creation tools, characteristics and conventions
- Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multicultural environments

Time Allotment

Resources Big Ideas Math Chapter 2, Lessons 1, 3-4, 6
Chapter 3, Lessons 5
Chapter 4, Lessons 1-5
Chapter 5, Lessons 1, 2, 4, 6
Chapter 6, Lessons 4-7
Chapter 8, Lessons 1, 4 , 5
Chapter 9, Lessons 1, 5
Chapter 10, Lessons 1
Chapter 11, Lessons 1-2

Technology: Online Graphing Utility
SmartBoard

Stage 1: Desired Results

Unit 4

Topic Quadratic Functions and Modeling

Content Standards N.RN.1-3
F.IF.4-9
F.BF.1, 3-4
F.LE.3, 5

Essential Questions

1. How can we use mathematical language to describe non-linear change?
2. How can we use technology to analyze, graph, solve, and apply quadratic functions?

Enduring Understandings

1. Real world situations involving quadratic relationships can be solved using multiple representations
2. Mathematical models can be used to describe physical relationships
3. Graphs, tables, and equations are alternative ways for depicting and analyzing patterns of non-linear change

Knowledge and Skills (SWBAT embedded course proficiencies)

1. Use properties of integer exponents to explain and convert between expressions involving radicals and rational exponents, using correct notation. *For example, we define* $5^{1/3}$ *to be the cube root of 5 because we want* $(5^{1/3})^3 = 5^{(1/3)3}$ *to hold, so* $(5^{1/3})^3$ *must equal 5.*
2. Use the properties of rational and irrational numbers to explain why the sum or product of two rational numbers is rational, the sum of a rational number and an irrational number is irrational, and the product of a nonzero rational number and an irrational number is irrational.
3. Sketch the graph of a function that models a relationship between two quantities (expressed symbolically or from a verbal description) showing key features (including intercepts, minimums/maximums, domain, and rate of change) by hand in simple cases and using technology in more complicated cases and relate the domain of the function to its graph.
4. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
5. Calculate (over a specified period if presented symbolically or as a table) or estimate (if presented graphically) and interpret the average rate of change of a function.
6. Write functions in different but equivalent forms by manipulating quadratic expressions using methods such as factoring and completing the square, or exponential expressions using the properties of exponents, to reveal and explain properties of the function.
7. Write a function that describes a linear or quadratic relationship between two quantities given in context using an explicit expression, a recursive process, or steps for calculation (include contexts that require a combination of various function types). ★*For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

8. Identify the effects of translations [*f(x) + k, k f(x), f(kx),* and *f(x + k)]* on a function and find the value of *k* given the graphs.
9. Determine if a function has an inverse, and if so, write the expression for it.
10. Compare (using graphs and tables) linear, quadratic, and exponential models to determine that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function, include interpretation of parameters in terms of a context.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

1. Simplify: $9^{5/2}$
2. Simplify:

   $\sqrt{16} + \sqrt{25}$

   $\sqrt{36} + \sqrt{17}$

   $\sqrt{49}(\sqrt{26})$
3. Sketch the function:

   $f(x) = -7^x$

   Describe the domain and range.
4. Compare the graph of $f(x) = x^2$ to $g(x) = -x^2 + 4$
5. See Activity 2 on p. 443 in Big Ideas text for example assessment about rate of change.
6. Complete the square, then factor the trinomial:

   x^2-3x
7. Compare the graphs of f(x)+4

   4f(x)

   f(4x)

   and f(x+4)
8. Determine if f(x) =3x-1 has an inverse. If so, write it.
9. See Activity 2 on p. 443 in Big Ideas text for example assessment comparing linear, quadratic and exponential functions.

Assessment: Assessments may include, but are not limited to homework, class discussions, internet practice utilities (such as IXL.com) and mid unit quizzes as forms of formative assessment. End of unit tests and projects are the primary form of summative assessment.

Stage 3: Learning Plan

Again, we will be working with real life problems where we would need to use quadratics and factoring. Students will also discover the graph of a quadratic through an investigation of plugging in x values, noting the output, and plotting them on a graph. Ultimately, we will be able to put together all of the concepts for quadratics and discuss the graph of one in a real life setting.

Work Independently

- Monitor, define, prioritize and complete tasks without direct oversight
- Activity: Sloppy student – students analyze and correct the mistakes made by another student who is graphing a quadratic.
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Be Responsible to Others

- Act responsibly with the interests of the larger community in mind
- Activity: Group of 3 activity – students create, factor, expand, compare, and draw quadratics.

Time Allotment

Resources Big Ideas Math

Chapter 2, Lessons 2-7
Chapter 5, Lessons 1, 2, 4
Chapter 6, Lessons 2-6
Chapter 8, Lessons 1-5
Chapter 9, Lessons 3
Chapter 10, Lessons 1-2
Chapter 11, Lessons 2

Technology: Online Graphing Utility
SmartBoard

Stage 1: Desired Results

Unit 5

Topic Functions and Descriptive Statistics

Content Standards F.BF.2
F.LE.1-2
S.ID.1-3, 5-9

Essential Questions

1. How do people analyze information to make a good and fair decision? Can data representation influence decisions?
2. How can we determine how many ways something can occur and does order matter?

Enduring Understandings

1. Tables, graphs, charts, tree diagrams, and symbols are alternative ways of representing data and relationships that can be translated from one to another
2. Data sets can be analyzed in various ways to provide a sense of the shape of the data
3. Data can be messy and not always easily analyzed

Knowledge and Skills (SWBAT embedded course proficiencies)

1. Write linear and exponential functions (e.g. growth/decay and arithmetic and geometric sequences) from graphs, tables, or a description of the relationship, recursively and with an explicit formula, and describe how quantities increase linearly and exponentially over equal intervals.
2. Represent data on the real number line (i.e. dot plots, histograms, and box plots) and use statistics to compare and interpret differences in shape, center, and spread in the context of the data (account for effects of outliers).
3. Summarize and interpret categorical data for two categories in two-way frequency tables; recognize associations and trends in the data.
4. Represent and describe data for two variables on a scatter plot, fit a function to the data, analyze residuals (in order to informally assess fit), and use the function to solve problems.
   Uses a given function or choose a function suggested by the context. Emphasize linear and exponential
   models.
5. Interpret the slope, intercept and correlation coefficient (compute using technology) of a linear model.

6. Distinguish between correlation and causation in a data context.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

1. See example 4, page 239 of Big Ideas text for real-life application comparing simple interest versus compound interest savings accounts. Describe how quantities increase linearly and exponentially over equal intervals.
2. The times for 20 presentations are listed: 9, 7, 10, 12, 10, 11, 8, 10, 10, 17, 11, 5, 9, 10, 4, 12, 6, 14, 8, 10. Summarize the data using a dot plot, histogram and box plot. Discuss the shape, center and spread of the data.
3. See exercise 9, page 656 of Big Ideas to assess mastery of two-way frequency tables.
4. See example 2, page 647 of Big Ideas text example of assessing mastery of scatter plot, line of best fit, residuals.
5. See exercises 19 and 20, page 651 of Big Ideas text to assess mastery of correlation coefficient, slope and intercept.
6. Tell whether a correlation is likely in the situation. If so, tell whether there is a causal relationship: the weight of a dog and the length of its tail.

Assessment: Assessments may include, but are not limited to homework, class discussions, internet practice utilities (such as IXL.com) and mid unit quizzes as forms of formative assessment. End of unit tests and projects are the primary form of summative assessment.

Stage 3: Learning Plan

This unit should have a very hands-on approach where the students are conducting their own experiments. This will lead the students to verify the difference between theoretical and experimental probabilities. Also, the students will take sets of data and find the measures of central tendencies (mean,
median, and mode) and the range. Students will take the information they have complied and use their
own judgment to decide which measure best represents the data.

Interact Effectively with Others

- Know when it is appropriate to listen and when to speak
- Conduct themselves in a respectable, professional manner
- Activity: Students will work together to find the mean, median, mode, and range of a given set of data.
  Each student will have a different role and responsibility and will communicate their individual task to
  the rest of the group.

Information Literacy

- Access and Evaluate Information
- Access information efficiently (time) and effectively (sources)
- Evaluate information critically and competently
- Activity: Students will perform experiments to investigate the difference between theoretical and
  experimental probability.

Time Allotment

Resources Big Ideas Math — Chapter 5, Lessons 3, 5, 6
Chapter 6, Lessons 4-7
Chapter12, Lessons 1-8

Technology: Online Graphing Utility
SmartBoard

New Jersey Core Curriculum and Common Core Content Standards

http://www.state.nj.us/education/cccs/

Integration of 21st Century Theme(s)

The following websites are sources for the following 21st Century Themes and Skills:
http://www.nj.gov/education/code/current/title6a/chap8.pdf
http://www.p21.org/about-us/p21-framework .
http://www.state.nj.us/education/cccs/standards/9/index.html

21st Century Interdisciplinary Themes (into core subjects)

- **Global Awareness**
- **Financial, Economic, Business and Entrepreneurial Literacy**
- **Civic Literacy**
- **Health Literacy**
- **Environmental Literacy**

Learning and Innovation Skills

- **Creativity and Innovation**
- **Critical Thinking and Problem Solving**
- **Communication and Collaboration**

Information, Media and Technology Skills

- **Information Literacy**
- **Media Literacy**
- **ICT (Information, Communications and Technology) Literacy**

Life and Career Skills

- **Flexibility and Adaptability**
- **Initiative and Self-Direction**
- **Social and Cross-Cultural Skills**
- **Productivity and Accountability**
- **Leadership and Responsibility**

Integration of Digital Tools

- **Classroom computers/laptops/Chromebooks**
- **Technology Lab**
- **Voice amplification device**
- **Other software programs**