# MOUNT HOLLY TOWNSHIP SCHOOL DISTRICT
# SIXTH GRADE MATHEMATICS CURRICULUM

**2016 Mathematics Standards with companion June 2020 NJSLS**
**Board Approval: September 28, 2022**

## District Administration

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| Mr. Robert Mungo | Superintendent |
| Mrs. Amie Dougherty | Director of Curriculum and Instruction |
| Mrs. Tifanie Pierce | Director of Special Services |
| Mrs. Carolyn McDonald | Director of Equity and Student Services |
| Mr. Daniel Finn | Principal 5-8 |
| Mr. Thomas Braddock | Principal 2-4 |
| Mrs. Nicole Peoples | Principal PreK-2 |
| Mrs. Kinny Nahal | Assist Principal 5-8 |
| Mrs. Evon DiGangi | School Business Administrator |

## Mount Holly Township Board of Education

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| Mrs. Janet DiFolco | Board President |
| Ms. Jennifer Mushinsky | Board Vice-President |
| Mrs. Brianna Banks | Board Member |
| Mrs. Janene Ciotti | Board Member |
| Mr. William Monk | Board Member |

Board Approval: September 28, 2022

**New Jersey Mathematics Standards:**
2016 New Jersey Student Learning Standards - Mathematics

**New Jersey Computer Science and Design Thinking Standards**
2020 New Jersey Student Learning Standards: Computer Science and Design Thinking

**New Jersey Career Readiness, Life Literacies, and Key Skills Standards**
2020 New Jersey Student Learning Standards: Career Readiness, Life Literacies & Key Skills

# Grade Six Pacing Guide

| **Mathematics Curriculum** | **Grade 6** |
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**Interdisciplinary Connections:** The Mathematics Program, My Math/Glencoe Math, links mathematics instruction across multiple disciplines. These interdisciplinary standards are incorporated into each grade level, providing purposeful application and meaningful learning.

| *Math Discipline* | *Connection to other Disciplines* |
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| Domain 1: NS. The Number System | NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.<br><br>NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.<br><br>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.<br><br>NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.<br>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.<br><br>NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding |

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| | of presentations. |
| Domain 2: RP. Ratios and Proportions | NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.<br><br>NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.<br><br>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.<br><br>NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.<br><br>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.<br><br>NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.<br><br>MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system. |
| Domain 3: EE. Expressions and Equations | NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.<br><br>NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.<br><br>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.<br><br>NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.<br><br>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.<br><br>NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.<br><br>MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. |

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| Domain 4: G. Geometry | NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.<br><br>NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.<br><br>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.<br><br>NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.<br><br>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.<br><br>NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. |
| Domain 5: SP. Statistics and Probability | NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.<br><br>NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.<br><br>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.<br><br>NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.<br><br>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.<br><br>NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.<br><br>MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.<br><br>MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. |

| Computer Science and Design Thinking | |
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| **Core Ideas** | **Performance Expectations** |
| People use digital devices and tools to automate the collection, use, and transformation of data. The manner in which data is collected and transformed is influenced by the type of digital device(s) available and the intended use of the data. | 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. |
| Computer models can be used to simulate events, examine theories and inferences, or make predictions. | • 8.1.8.DA.5: Test, analyze, and refine computational models.<br>• 8.1.8.DA.6: Analyze climate change computational models and propose refinements. |
| Individuals design algorithms that are reusable in many situations. Algorithms that are readable are easier to follow, test, and debug. | 8.1.8.AP.1: Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode. |
| **Career Readiness, Life Literacies, and Key Skills** | |
| **Financial Institutions/Psychology** | |
| **Core Ideas** | **Performance Expectations** |
| There are a variety of factors that influence how well suited a financial institution and/or service will be in meeting an individual's financial needs. | 9.1.8.FI.1: Identify the factors to consider when selecting various financial service providers.<br>9.1.8.FI.2: Determine the most appropriate use of various financial products and services to borrow and access money for making purchases (e.g., ATM, debit cards, credit cards, check books, online/mobile banking).<br>9.1.8.FI.3: Evaluate the most appropriate financial institutions to assist with meeting various personal financial needs and goals. |

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| | 9.1.8.FI.4: Analyze the interest rates and fees associated with financial products. |
| An individual's values and emotions will influence the ability to modify financial behavior (when appropriate), which will impact one's financial well-being. | 9.1.8.FP.1: Describe the impact of personal values on various financial scenarios.<br>9.1.8.FP.2: Evaluate the role of emotions, attitudes, and behavior (rational and irrational) in making financial decisions.<br>9.1.8.FP.3: Explain how self-regulation is important to managing money (e.g., delayed gratification, impulse buying, peer pressure, etc.).<br>9.1.8.FP.4: Analyze how familial and cultural values influence savings rates, spending, and other financial decisions.<br>9.1.8.FP.5: Determine how spending, investing, and using credit wisely contributes to financial well-being. |
| **Planning and Budgeting** | |
| A budget aligned with an individual's financial goals can help prepare for life events. | 9.1.8.PB.1: Predict future expenses or opportunities that should be included in the budget planning process.<br>9.1.8.PB.2: Explain how different circumstances can affect one's personal budget.<br>9.1.8.PB.3: Explain how to create budget that aligns with financial goals.<br>9.1.8.PB.4: Construct a simple personal savings and spending plan based on various sources of income and different stages of life (e.g. teenager, young adult, family). |
| Saving money can impact an individual's ability to address emergencies and accomplish their short-and long-term goals. | 9.1.5.PB.2: Describe choices consumers have with money (e.g., save, spend, donate). |
| **Career Awareness, Exploration, Preparation, and Training** | |
| An individual's strengths, lifestyle goals, choices, and interests affect employment and income | 9.2.8.CAP.1: Identify offerings such as high school and county career and technical school courses, apprenticeships, military |

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| | programs, and dual enrollment courses that support career or occupational areas of interest.<br>9.2.8.CAP.2: Develop a plan that includes information about career areas of interest.<br>9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.<br>9.2.8.CAP.4: Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement. |
| There are resources to help an individual create a business plan to start or expand a business. | 9.2.8.CAP.20: Identify the items to consider when estimating the cost of funding a business. |
| **Diversity, Equity, and Inclusion:** | |
| **Culturally Responsive Practices in Mathematics Education:**<br>**8 Powerful Ways to Promote Equity in the Classroom**<br><br>**Who Do You Call On? Rooting Out Implicit Bias'**<br><br>**Why Representation Matters** | |
| Examining Poverty, Inequity, and Hidden Biases: Lessons addressing financial psychology in Grades 6-8 will include explicit media, lessons, and topics related to the following **essential questions:**<br><br>● What problems arise when we relate to people as members of a group, rather than as unique individuals?<br>● How do power and privilege shape the relationships people have with each other as well as with institutions?<br>● How is empathy a seed of social action? | Resources:<br><br>Ben DeSoto 'Understanding Poverty' exhibit<br><br>Why Chicken Means So Much to Me<br><br>How Rich are the Super Rich?<br><br>Average Household Income Graphic |

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| | Inventing a Better World Lesson |

| **Domain 1: The Number System** | |
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| **Pacing Guide**<br>**Grade 6** Mathematics Pacing Guide | Chapter 1:<br>Chapter 3:<br>Chapter 4:<br>Chapter 5:<br>Chapter 9: |

**NJ 2016 Student Learning Standards: Mathematics Grade 6**

A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

**1**. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc). How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*

B. Compute fluently with multi-digit numbers and find common factors and multiples.

2. Fluently divide multi-digit numbers using the standard algorithm.

3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4(9 + 2).*

C. Apply and extend previous understandings of numbers to the system of rational numbers.

5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.

b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane

7. Understand ordering and absolute value of rational numbers.

a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.*

b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 °C > –7 °C to express the fact that*

*–3 °C is warmer than –7 °C.*

c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.*

d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*

8. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

| **NJDOE Mathematics Curricular Framework**<br>Guide Document and Supports<br><br>Mathematics Curricular Framework | **Mathematical Practices**<br><br>**MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels** |
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| | **should seek to develop in their students.**<br><br>**highlight appropriate indicators for unit/domain**<br><br>MP.1. Make sense of problems and persevere in solving them.<br>MP.2. Reason abstractly and quantitatively.<br>MP.3. Construct viable arguments and critique the reasoning of others.<br>MP.4. Model with mathematics.<br>MP.5. Use appropriate tools strategically.<br>MP.6. Attend to precision.<br>MP.7. Look for and make use of structure.<br>MP.8. Look for and express regularity in repeated reasoning. |
| **Career Readiness, Life Literacies, and Key Skills Integration**<br>**NJSLS - CRLLKS 2020**<br><br>**highlight appropriate indicators for unit/domain**<br><br>CRLLKS1. Act as a responsible and contributing community members and employee.<br>CRLLKS2. Attend to financial well-being.<br>CRLLKS3. Consider the environmental, social and economic impacts of decisions.<br>CRLLKS4. Demonstrate creativity and innovation.<br>CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them<br>CRLLKS6. Model integrity, ethical leadership and effective management.<br>CRLLKS7. Plan education and career paths aligned to personal goals. | **21st Century Student Outcomes**<br>http://www.battelleforkids.org/networks/p21<br><br>**Learning and Innovation Skills**<br>**highlight appropriate indicators for unit/domain**<br>Think Creatively<br>Work Creatively with Others<br>Implement Innovations<br>Reason effectively<br>Use Systems Thinking<br>Make Judgments and Decisions<br>Solve Problems<br>Communicate Clearly<br>Collaborate with Others<br><br>**Life and Career Skills**<br>**highlight appropriate indicators for unit/domain**<br>Adapt to Change |

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| CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them.<br>CRLLKS9. Work productively in teams while using cultural/global competence. | Be Flexible<br>Manage Goals and Time<br>Work Independently<br>Be Self-directed Learners<br>Interact Effectively with Others<br>Work Effectively in Diverse Teams |
| **Enduring Understandings**<br>● Rational numbers can be represented in multiple ways and are useful when examining situations involving numbers that are not whole. | **Essential Questions**<br>● In what ways can rational numbers be useful? |
| **Content Knowledge**<br><br>The Number Line<br><br><br><br><br><br><br><br>Prime Factorization<br><br><br><br>Common Factor and Multiples | **Skills**<br><br>Represent whole numbers, fractions and decimals on a number line.<br>Interpret and write statements of inequalities for two given positive numbers using the symbols > and <.<br>Describe the relative position of two numbers on a number line when given an inequality.<br>Show and explain why every rational number can be represented by a point on a number line.<br><br>Express a whole number as a product of its prime factors.<br>Find all factors of any given number, less than or equal to 100.<br><br>Find the greatest common factor of any town numbers less than or equal to 100.<br>Create a list of multiples for any number less than or equal to 2. |

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| | Find the least common multiple of any two numbers, less than or equal to 12.<br>Use the distributive property to rewrite a simple addition problem when the addends have a common factor. |
| Square and Square Roots | Find the square of a number.<br>Find the square root of a perfect square.<br>Explain the meaning of a number raised to a power.<br>Write numerical expressions involving whole number exponents. |
| Negative Numbers | Describe and give examples of how positive or negative numbers are used to describe quantities having opposite directions or opposite values.<br>Recognize that positive and negative signs represent opposite values and/or directions.<br>Explain that the number zero is the point at which direction or value will change.<br>Use positive and negative numbers along with zero to represent real world situations.<br>Describe the relative position of two numbers on a number line when given an inequality.<br>Interpret a given inequality in terms of real life situations. |
| Absolute Value and Opposites | Define absolute value as it applies to a number line.<br>Describe absolute value as the magnitude of the number line in a real-world situation.<br>Compare between using a signed number and using an absolute value when referring to real- world situations.<br>Plot a number and its opposite on a number line and recognize that they are equidistant from zero.<br>Find the opposite of any given number, including zero. |

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| Dividing Fractions. | Use a visual model to represent the division of a fraction by a fraction.<br>Divide fractions by fractions using an algorithm or mathematical reasoning.<br>Justify the quotient of a division problem by relating it to a multiplication problem.<br>Use mathematical reasoning to justify the standard algorithm for fractional division.<br>Solve real life problems involving the division of fractions and interpret the quotient in the context of the problem.<br>Create story contexts for problems involving the division of a fraction by a fraction. |
| Multiplying Decimals | Multiply a decimal by a decimal. |
| Dividing Decimals. | Divide a whole number or decimal by a decimal. |
| Add, subtract, multiply and divide with decimals. | Add, subtract, multiply and divide multi-digit decimals using the standard algorithm for each operation. |

**Primary and Supplementary Resources**

**Glencoe Math Resources**
Chapter 1: Lessons 1
Chapter 3: Lessons 1-8; Problem Solving Investigation
Chapter 4: Lessons 1-4, 6-7; Problem Solving Investigation
Chapter 5: Lessons 1-7, Problem Solving Investigation
Chapter 9: Lesson 5

Glencoe Math Online Resources

EdConnect Login

**NJSLA Mathematics Operational Evidence Statements**
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

**NJSLA Released Items**
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/

**6th grade Flip Book**:
https://drive.google.com/file/d/1xo9KBqKpffgleaEj4UKvC1PnAI02O7eV/view?usp=sharing

Illustrative Mathematics

iReady
*i-Ready* makes differentiated instruction a practical reality for teachers and students. *i-Ready*:
- ➢ integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- ➢ empowers teachers every day to make more informed instructional decisions.
- ➢ motivates students with access to their own personalized path to growth.

XtraMath
- ➢ This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- ➢ Can individualize the fluency skills for each student.
- ➢ Can run reports to determine progress.

Scholastic Study Jams
- ➢ Fun videos which explain common mathematics concepts.
- ➢ Questions at the end of the video reinforce the concepts.

Khan Academy
- ➢ a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
- ➢ Its website also includes supplementary practice exercises and materials for educators.

**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

**Fluency Support for Grades 6-8**
https://drive.google.com/file/d/1rNBWYvsveLgDm3JwOx1Ace1iH4aKonyR/view?usp=sharing

**Achieve the Core Coherence Map**
https://achievethecore.org/coherence-map/6

**Assessments:**

- ➢ Pre-Assessments
- ➢ Quizzes
- ➢ Mid Chapter Assessments
- ➢ End of Chapter Assessments
- ➢ Performance Tasks
- ➢ Benchmark Tests

**Differentiation in the Mathematics Classroom**

**Special Education Students**

- ➢ Chunk content
- ➢ Small group instruction
- ➢ Notes packets/graphic organizers provided
- ➢ Anchor charts/multiplication charts/reference sheets provided
- ➢ Calculators provided as needed
- ➢ Modified assessments/assignments and extra time given
- ➢ YouTube clips used to supplement content visually

**English Language Learners**

- ➢ Create Vocabulary Banks
- ➢ Use manipulatives
- ➢ Modify teacher talk and practice wait time
- ➢ Elicit nonverbal responses, like a thumbs up or down
- ➢ Use sentence frames
- ➢ Comprehensible input
- ➢ Contextualized instruction
- ➢ A low-anxiety learning environment

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| ➢ Number Lines<br>➢ Vocabulary Enrichment | ➢ Meaningful engagement in learning activities |
| **At-Risk Students**<br>➢ Reduce the number of problems given<br>➢ Provide calculators<br>➢ Give extra time | **504 Students**<br>➢ Provide a checklist of the steps needed to complete the problem<br>➢ Provide place value charts<br>➢ Provide lots of white-space to make it less busy<br>➢ If still struggling, reteach and retest |
| **Gifted and Talented Students**<br>➢ Use more-challenging numbers<br>➢ Add additional steps by combining standards<br>➢ Introduce the next-grade-level standard<br>➢ Know Their Interests – Start by having students complete an interest inventory like this one Student Interest Survey<br>➢ Keep Them Active - Gifted students often need to have the ability to move when learning<br>➢ Offer Flexible Seating - Try to offer different seating options for students: beanbag chairs, carpet squares, pillows, director chairs … the list can go on and on.<br>➢ Share Current Events - Current events are important to incorporate into gifted programming. We want these students to be thinking about how they can use their talents to solve real-world problems.<br>➢ Practice Like Professionals - Allow students to practice like the professionals. Use the same processes that professionals use.<br>➢ Locate Authentic Audiences - The work students create should have a real audience and be appreciated by those who authentically would benefit from its completion. Younger students are a great first authentic audience. | |

| **Domain 2: Ratios and Proportional Relationships** | |
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| **Pacing Guide**<br>**Grade 6** Mathematics Pacing Guide | Chapter 1:<br>Chapter 2:<br>Chapter 3:<br>Chapter 7: |

**NJ 2016 Student Learning Standards: Mathematics Grade 6**

A. Understand ratio concepts and use ratio reasoning to solve problems.

1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."

2. Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠0, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."1

3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

a. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?

c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

| **NJDOE Mathematics Curricular Framework**<br>Guide Document and Supports<br><br>Mathematics Curricular Framework | **Mathematical Practices**<br><br>**MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels** |
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| | **should seek to develop in their students.**<br><br>**highlight appropriate indicators for unit/domain**<br><br>MP.1. Make sense of problems and persevere in solving them.<br>MP.2. Reason abstractly and quantitatively.<br>MP.3. Construct viable arguments and critique the reasoning of others.<br>MP.4. Model with mathematics.<br>MP.5. Use appropriate tools strategically.<br>MP.6. Attend to precision.<br>MP.7. Look for and make use of structure.<br>MP.8. Look for and express regularity in repeated reasoning. |
| **Career Readiness, Life Literacies, and Key Skills Integration**<br>**NJSLS - CRLLKS 2020**<br><br>**highlight appropriate indicators for unit/domain**<br><br>CRLLKS1. Act as a responsible and contributing community members and employee.<br>CRLLKS2. Attend to financial well-being.<br>CRLLKS3. Consider the environmental, social and economic impacts of decisions.<br>CRLLKS4. Demonstrate creativity and innovation.<br>CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them<br>CRLLKS6. Model integrity, ethical leadership and effective management.<br>CRLLKS7. Plan education and career paths aligned to personal goals. | **21st Century Student Outcomes**<br>http://www.battelleforkids.org/networks/p21<br><br>**Learning and Innovation Skills**<br>**highlight appropriate indicators for unit/domain**<br>Think Creatively<br>Work Creatively with Others<br>Implement Innovations<br>Reason effectively<br>Use Systems Thinking<br>Make Judgments and Decisions<br>Solve Problems<br>Communicate Clearly<br>Collaborate with Others<br><br>**Life and Career Skills**<br>**highlight appropriate indicators for unit/domain**<br>Adapt to Change |

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| CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them.<br>CRLLKS9. Work productively in teams while using cultural/global competence. | Be Flexible<br>Manage Goals and Time<br>Work Independently<br>Be Self-directed Learners<br>Interact Effectively with Others<br>Work Effectively in Diverse Teams |
| **Enduring Understandings**<br>● Ratio and proportional relationships are used to express how quantities are related and how quantities change in relation to each other. | **Essential Questions**<br>● How can ratios and proportional relationships be used to determine unknown quantities? |
| **Content Knowledge**<br><br>Ratio<br><br><br><br>Ratio and Rate Reasoning | **Skills**<br><br>Define the term ratio and demonstrate an understanding by giving various examples.<br>Write a ratio that describes a relationship between two quantities.<br>Explain what a ratio represents.<br><br>Define the term “unit rate” and demonstrate an understanding by giving various examples.<br>Recognize a ratio written as a unit rate, explain a unit rate, and give examples of unit rates.<br>Solve real-world problems involving proportional reasoning by using various diagram.<br>Create a table of equivalent ratios.<br>Use proportional relationships to find missing values in a table of equivalent ratios.<br>Compare ratios presented in various tables.<br>Plot corresponding values from an equivalent ratio table on a coordinate grid. |

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| Percents | Use proportional reasoning to solve unit rate problems.<br>I can use a ratio as a conversion factor when working with measurements of different units.<br><br>Use visual representations (strip diagrams, percent bars, one-hundred grids) to model percents.<br>I can write a percent as a rate per one-hundred.<br>I can use proportional reasoning to find the percent of a given number.<br>I can use proportional reasoning to find the whole given both the part and the percent. |

**Primary and Supplementary Resources**

Glencoe Math Resources
Chapter 1: Lesson 2-7; Problem Solving Investigation
Chapter 2: Lesson 1-8; Problem Solving Investigation
Chapter 3: Lesson 5
Chapter 7: Lesson 4

Glencoe Math Online Resources

EdConnect Login

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https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

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**Assessments:**

- ➢ Pre-Assessments
- ➢ Quizzes
- ➢ Mid Chapter Assessments
- ➢ End of Chapter Assessments
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- ➢ Chunk content
- ➢ Small group instruction
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- ➢ Create Vocabulary Banks
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- ➢ Elicit nonverbal responses, like a thumbs up or down
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- ➢ Provide a checklist of the steps needed to complete the problem
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- ➢ Provide lots of white-space to make it less busy
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**Gifted and Talented Students**

- ➢ Use more-challenging numbers
- ➢ Add additional steps by combining standards
- ➢ Introduce the next-grade-level standard
- ➢ Know Their Interests – Start by having students complete an interest inventory like this one Student Interest Survey
- ➢ Keep Them Active - Gifted students often need to have the ability to move when learning
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- ➢ Share Current Events - Current events are important to incorporate into gifted programming. We want these students to be thinking about how they can use their talents to solve real-world problems.
- ➢ Practice Like Professionals - Allow students to practice like the professionals. Use the same processes that professionals use.
- ➢ Locate Authentic Audiences - The work students create should have a real audience and be appreciated by those who authentically would benefit from its completion. Younger students are a great first authentic audience.

| **Domain 3: Expressions and Equations** | |
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| **Pacing Guide**<br>**Grade 6** Mathematics Pacing Guide | Chapter 6<br>Chapter 7 |

| | Chapter 8 |
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**NJ 2016 Student Learning Standards: Mathematics Grade 6**

**A. Apply and extend previous understandings of arithmetic to algebraic expressions.**

1. Write and evaluate numerical expressions involving whole-number exponents.
2. Write, read, and evaluate expressions in which letters stand for numbers.
   a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.*
   b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.*
   c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas* $V = s^3$ *and* $A = 6s^2$ *to find the volume and surface area of a cube with sides of length s = 1/2.*
3. Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*
4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*

**B. Reason about and solve one-variable equations and inequalities.**

5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which $p$, $q$ and $x$ are all nonnegative rational numbers.

8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

**C. Represent and analyze quantitative relationships between dependent and independent variables.**

9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.*

| **NJDOE Mathematics Curricular Framework**<br>Guide Document and Supports<br><br>Mathematics Curricular Framework | **Mathematical Practices**<br><br>**MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.**<br><br>**highlight appropriate indicators for unit/domain**<br><br>MP.1. Make sense of problems and persevere in solving them.<br>MP.2. Reason abstractly and quantitatively.<br>MP.3. Construct viable arguments and critique the reasoning of others.<br>MP.4. Model with mathematics.<br>MP.5. Use appropriate tools strategically.<br>MP.6. Attend to precision.<br>MP.7. Look for and make use of structure.<br>MP.8. Look for and express regularity in repeated reasoning. |
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| **Career Readiness, Life Literacies, and Key Skills Integration**<br>**NJSLS - CRLLKS 2020**<br><br>**highlight appropriate indicators for unit/domain**<br><br>CRLLKS1. Act as a responsible and contributing community members and employee.<br>CRLLKS2. Attend to financial well-being.<br>CRLLKS3. Consider the environmental, social and economic impacts of decisions.<br>CRLLKS4. Demonstrate creativity and innovation.<br>CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them<br>CRLLKS6. Model integrity, ethical leadership and effective management.<br>CRLLKS7. Plan education and career paths aligned to personal goals.<br>CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them.<br>CRLLKS9. Work productively in teams while using cultural/global competence. | **21st Century Student Outcomes**<br>http://www.battelleforkids.org/networks/p21<br><br>**Learning and Innovation Skills**<br>**highlight appropriate indicators for unit/domain**<br>Think Creatively<br>Work Creatively with Others<br>Implement Innovations<br>Reason effectively<br>Use Systems Thinking<br>Make Judgments and Decisions<br>Solve Problems<br>Communicate Clearly<br>Collaborate with Others<br><br>**Life and Career Skills**<br>**highlight appropriate indicators for unit/domain**<br>Adapt to Change<br>Be Flexible<br>Manage Goals and Time<br>Work Independently<br>Be Self-directed Learners<br>Interact Effectively with Others<br>Work Effectively in Diverse Teams |
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| **Enduring Understandings**<br>● Algebraic expressions and equations are used to model real-life problems and represent quantitative relationships, so that the numbers and symbols can be mindfully manipulated to reach a solution or make sense | **Essential Questions**<br>● How can algebraic expressions and equations be used to model, analyze, and solve mathematical situations? |

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| of the quantitative relationships. | |

**Content Knowledge**

Algebraic Equations, Expressions and Inequalities

**Skills**

- ➢ Explain the meaning of a number raised to an power.
- ➢ Write numerical expressions involving whole-number exponents.
- ➢ Evaluate numerical expressions involving whole-number exponents.
- ➢ Translate a relationship given in words into an algebraic expression.
- ➢ Identify the parts of an algebraic expression by using the correct mathematical terms.
- ➢ Recognize when an expression is representing a sum and/or difference of terms versus a product and/or quotient of terms.
- ➢ Recognize an expression as both a single value and as two or more terms on which an operation is performed.
- ➢ Evaluate an algebraic expression for a given value.
- ➢ Substitute values in formulas to solve real life problems.
- ➢ Apply the order of operations when evaluating both arithmetic and algebraic expressions.
- ➢ Create a visual model to show two expressions are equivalent.
- ➢ Apply the properties of operations-especially the distributive property-to generate equivalent expressions.
- ➢ Determine whether two expressions are equivalent by using the same value to evaluate both expressions.
- ➢ Use the properties of operations to justify that two expressions are equivalent.
- ➢ Use a variable to write an algebraic expression that represents a real-world situation when a specific number is unknown.
- ➢
- ➢ Explain that solving an equation or inequality leads to finding the value or values of the variable that will make a true mathematical statement.
- ➢ Substitute a given value into an algebraic equation or inequality to determine whether it is part of the solution set.
- ➢ Explain and give examples of how a variable can represent a single unknown number or can represent any number in a specified set.
- ➢ Use a variable to write an expression that represents a consistent relationship in a particular pattern (use function tables to write an expression that would represent the output for any input).
- ➢ Solve the equation in the form $x + p = q$ where p and q are given numbers.

- ➢ Solve equations in the form px = q where p and q are given numbers.
- ➢ Write and solve algebraic equations that represent real world problems.
- ➢ Write a simple inequality to represent the constraints or conditions of numerical values in a real-world or mathematical problem.
- ➢ Explain what the solution of an inequality by graphing it on a number line.
- ➢ Create a table of two variables that represents a real-world situation in which one quantity will change in relation to the other.
- ➢ Explain the difference between the independent variable and the dependent variable and give examples of both.
- ➢ Determine the independent and dependent variable in a relationship.
- ➢ Write an algebraic equation that represents the relationship between the two variables.
- ➢ Create a graph by plotting the dependent variable on the x-axis and the independent variable on the y-axis of a coordinate plane.
- ➢ Analyze the relationship between the dependent and independent variables by comparing the table, graph, and equation.

**Primary and Supplementary Resources**

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Chapter 7: Lessons 1-5; Problem Solving Investigation
Chapter 8: Lessons 1-7; Problem Solving Investigation

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| **Domain 4: Geometry** | |
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| **Pacing Guide** | Chapter 9 |

| **Grade 6** Mathematics Pacing Guide | Chapter 10 |
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**NJ 2016 Student Learning Standards: Mathematics Grade 6**

**A. Solve real-world and mathematical problems involving area, surface area, and volume.**

1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\ w\ h$ and $V = B\ h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

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| **Enduring Understandings**<br>● Geometric attributes (such as shapes, lines, angles, figures, and planes) provide descriptive information | **Essential Questions**<br>● How does geometry better describe objects? |

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| about an object's properties and position in space and support visualization and problem solving. | |
| **Content Knowledge** | **Skills** |
| The Coordinate Plane | Plot vertices in the coordinate plane to draw specific polygons.<br>Use the coordinates of the vertices of a polygon to find the length of a specific side.<br>Plot points, draw figures, and find lengths on a coordinate plane to solve real-world problems. |
| Area of of Polygons | Show how to find the area of a parallelogram by decomposing it and recomposing the parts to form a rectangle.<br>Show how to find the area of a right triangle by composing them into a rectangle.<br>Show how to find the area of a triangle by composing two of them into a parallelogram or rectangle or by decomposing the triangle and recomposing its parts to form a parallelogram or rectangle.<br>Show how to find the area of a trapezoid by composing two of them into a rectangle and one or more triangles.<br>Show how to find the area of other polygons by decomposing them into simpler shapes such as triangles, rectangles, and parallelograms and combining the areas of those simple shapes.<br>Explain the relationship between the formulas for the area of rectangles, parallelograms, triangles, and trapezoids.<br>Solve real-world problems that involve finding the area of polygons. |
| | Match a net to the correct right rectangular prism, right |

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| Surface Area | triangular prism, right square pyramid or right tetrahedron.<br>Draw a net for a given rectangular prism, right triangular prism, right square pyramid or right tetrahedron.<br>Use a net to find the surface area of a rectangular prism, right triangular prism, right square pyramid or right tetrahedron.<br>Solve real-life problems that involve finding the surface area of a rectangular prism, right triangular prism, right square pyramid or right tetrahedron. |
| Volume of Solids | Find the volume of a right rectangular prism by reasoning about the number of unit cubes it takes to cover the first layer of the prism and the number of layers needed to fill the entire prism.<br>Generalize finding the volume of a right rectangular prism to the equation V =lwh or V = Bh.<br>Solve real-life problems that involve finding the volume of right rectangular prisms. |

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| **Domain 5: Statistics and Probability** | |
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| **Pacing Guide**<br>**Grade 6** Mathematics Pacing Guide | Chapter 9<br>Chapter 10 |

**NJ 2016 Student Learning Standards: Mathematics Grade 6**

A. Develop understanding of statistical variability.

1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*
2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

B. Summarize and describe distributions.

4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
5. Summarize numerical data sets in relation to their context, such as by:
   a. Reporting the number of observations.
   b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
   c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
   d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

| **NJDOE Mathematics Curricular Framework**<br>Guide Document and Supports | **Mathematical Practices**<br>**MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels** |
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| Mathematics Curricular Framework | **should seek to develop in their students.**<br><br>**highlight appropriate indicators for unit/domain**<br><br>MP.1. Make sense of problems and persevere in solving them.<br>MP.2. Reason abstractly and quantitatively.<br>MP.3. Construct viable arguments and critique the reasoning of others.<br>MP.4. Model with mathematics.<br>MP.5. Use appropriate tools strategically.<br>MP.6. Attend to precision.<br>MP.7. Look for and make use of structure.<br>MP.8. Look for and express regularity in repeated reasoning. |
| **Career Readiness, Life Literacies, and Key Skills Integration**<br>**NJSLS - CRLLKS 2020**<br><br>**highlight appropriate indicators for unit/domain**<br><br>CRLLKS1. Act as a responsible and contributing community members and employee.<br>CRLLKS2. Attend to financial well-being.<br>CRLLKS3. Consider the environmental, social and economic impacts of decisions.<br>CRLLKS4. Demonstrate creativity and innovation.<br>CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them<br>CRLLKS6. Model integrity, ethical leadership and effective management.<br>CRLLKS7. Plan education and career paths aligned to personal goals. | **21st Century Student Outcomes**<br>http://www.battelleforkids.org/networks/p21<br><br>**Learning and Innovation Skills**<br>**highlight appropriate indicators for unit/domain**<br>Think Creatively<br>Work Creatively with Others<br>Implement Innovations<br>Reason effectively<br>Use Systems Thinking<br>Make Judgments and Decisions<br>Solve Problems<br>Communicate Clearly<br>Collaborate with Others<br><br>**Life and Career Skills**<br>**highlight appropriate indicators for unit/domain**<br>Adapt to Change |

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| CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them.<br>CRLLKS9. Work productively in teams while using cultural/global competence. | Be Flexible<br>Manage Goals and Time<br>Work Independently<br>Be Self-directed Learners<br>Interact Effectively with Others<br>Work Effectively in Diverse Teams |
| **Enduring Understandings**<br>● The rules of probability can lead to more valid and reliable predictions about the likelihood of an event occurring. | **Essential Questions**<br>● How is the probability used to make informed decisions about uncertain events? |
| **Content Knowledge**<br><br>Introduction to Statistics and Measures of Central Tendency | |
| **Skills**<br><br>➢ Plot vertices in the coordinate plane to draw specific polygons.<br>➢ Use the coordinates of the vertices of a polygon to find the length of a specific side.<br>➢ Plot points, draw figures, and find lengths on a coordinate plane to solve real-world problems.<br><br>➢ Show how to find the area of a parallelogram by decomposing it and recomposing the parts to form a rectangle.<br>➢ Show how to find the area of a right triangle by composing them into a rectangle.<br>➢ Show how to find the area of a triangle by composing two of them into a parallelogram or rectangle or by decomposing the triangle and recomposing its parts to form a parallelogram or rectangle.<br>➢ Show how to find the area of a trapezoid by composing two of them into a rectangle and one or more triangles.<br>➢ Show how to find the area of other polygons by decomposing them into simpler shapes such as triangles, rectangles, and parallelograms and combining the areas of those simple shapes. | |

- ➢ Explain the relationship between the formulas for the area of rectangles, parallelograms, triangles, and trapezoids.
- ➢ Solve real-world problems that involve finding the area of polygons.

- ➢ Match a net to the correct right rectangular prism, right triangular prism, right square pyramid or right tetrahedron.
- ➢ Draw a net for a given rectangular prism, right triangular prism, right square pyramid or right tetrahedron.
- ➢ Use a net to find the surface area of a rectangular prism, right triangular prism, right square pyramid or right tetrahedron.
- ➢ Solve real-life problems that involve finding the surface area of a rectangular prism, right triangular prism, right square pyramid or right tetrahedron.

- ➢ Find the volume of a right rectangular prism by reasoning about the number of unit cubes it takes to cover the first layer of the prism and the number of layers needed to fill the entire prism.
- ➢ Generalize finding the volume of a right rectangular prism to the equation V =lwh or V = Bh.
- ➢ Solve real-life problems that involve finding the volume of right rectangular prisms.

**Primary and Supplementary Resources**

Glencoe Math Resources
Chapter 9: Lessons 1-6; Problem Solving Investigations
Chapter 10: Lessons 1-5; Problem Solving Investigations

Glencoe Math Online Resources

EdConnect Login

**NJSLA Mathematics Operational Evidence Statements**
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

**NJSLA Released Items**
https://nj.digitalitemlibrary.com/home

https://resources.newmeridiancorp.org/

**6th grade Flip Book**:
https://drive.google.com/file/d/1xo9KBqKpffgleaEj4UKvC1PnAI02O7eV/view?usp=sharing

Illustrative Mathematics

iReady
*i-Ready* makes differentiated instruction a practical reality for teachers and students. *i-Ready*:

- ➢ integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- ➢ empowers teachers every day to make more informed instructional decisions.
- ➢ motivates students with access to their own personalized path to growth.

XtraMath

- ➢ This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- ➢ Can individualize the fluency skills for each student.
- ➢ Can run reports to determine progress.

Scholastic Study Jams

- ➢ Fun videos which explain common mathematics concepts.
- ➢ Questions at the end of the video reinforce the concepts.

Khan Academy

- ➢ a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
- ➢ Its website also includes supplementary practice exercises and materials for educators.

**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

**Fluency Support for Grades 6-8**

https://drive.google.com/file/d/1rNBWYvsveLgDm3JwOx1Ace1iH4aKonyR/view?usp=sharing

**Achieve the Core Coherence Map**
https://achievethecore.org/coherence-map/6

**Assessments:**

- Pre-Assessments
- Quizzes
- Mid Chapter Assessments
- End of Chapter Assessments
- Performance Tasks
- Benchmark Tests

**Differentiation in the Mathematics Classroom**

**Special Education Students**

- Chunk content
- Small group instruction
- Notes packets/graphic organizers provided
- Anchor charts/multiplication charts/reference sheets provided
- Calculators provided as needed
- Modified assessments/assignments and extra time given
- YouTube clips used to supplement content visually
- Number Lines
- Vocabulary Enrichment

**English Language Learners**

- Create Vocabulary Banks
- Use manipulatives
- Modify teacher talk and practice wait time
- Elicit nonverbal responses, like a thumbs up or down
- Use sentence frames
- Comprehensible input
- Contextualized instruction
- A low-anxiety learning environment
- Meaningful engagement in learning activities

**At-Risk Students**

- Reduce the number of problems given
- Provide calculators
- Give extra time

**504 Students**

- Provide a checklist of the steps needed to complete the problem
- Provide place value charts

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| ➢ After-School Extended Day Program<br>➢ One-on-One tutoring/small group instruction<br>➢ Counseling Groups through the guidance office<br>➢ PBIS strategies and activities | ➢ Provide lots of white-space to make it less busy<br>➢ If still struggling, reteach and retest |

**Gifted and Talented Students**

- ➢ Use more-challenging numbers
- ➢ Add additional steps by combining standards
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