

**COURSE TITLE**

Grade 6- Math

**LENGTH**

Full Year

**DEPARTMENT**

STEM Department

**SCHOOL**

Pierrepont Elementary School

**DATE**

September 10, 2018

## Grade 6- Math

### I. Introduction/Overview/Philosophy

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

1. Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.
2. Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.
3. Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as  $3x = y$ ) to describe relationships between quantities.
4. Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability.

### II. Objectives

*Course Outline:*

1. Prime numbers and the number line
  - a. Positive whole number/fractions/decimals on a number line
  - b. Inequality statements comparing numbers in different forms
  - c. Factors/multiples/Prime factorization
  - d. Squares and cubes
  - e. Square roots and Cube roots
  - f. Apply to real-world
2. Negative Numbers and the Number Line
  - a. Negative integers on number line
  - b. Absolute value
  - c. Ordered pairs on a Coordinate Plane
  - d. Reflections
  - e. Lengths of segments
  - f. Apply to real-world
3. Multiplying and dividing fractions and decimals
  - a. Adding and Subtracting Fractions and Decimals
  - b. Fraction Division
  - c. Decimal Multiplication
  - d. Dividing Decimals
  - e. Apply to real-world
4. Ratios
  - a. Compare two quantities
  - b. Equivalent ratios
  - c. Missing terms in ratios
  - d. Apply to real-world
5. Rates and Percents
  - a. Rates and unit rates
  - b. Understanding percents
  - c. Fractions/decimals/percent equivalencies
  - d. Percent of a quantity
  - e. Apply to real-world
6. Algebraic Expressions
  - a. Writing algebraic expressions
  - b. Evaluating Algebraic expressions
  - c. Simplifying algebraic expressions
  - d. Combining like terms
  - e. Expanding/factoring Algebraic expressions
  - f. Apply to real-world
7. Equations and Inequalities
  - a. Solving one-step Algebraic equations
  - b. Writing linear equations
  - c. Solving inequalities
  - d. Apply to real-world
8. Area of polygons
  - a. Area of triangles
  - b. Area of parallelograms/trapezoids
  - c. Area of other polygons
  - d. Area of composite figure

- e. Apply to real-worlds
9. Surface area and volume of solids
  - a. Identify parts of a 3D figure
  - b. Nets of solids
  - c. Surface area of solids
  - d. Volume of prisms
  - e. Apply to real-world
10. Introduction to Statistics and Measures of Central Tendency
  - a. Collecting and tabulating data
  - b. Displaying data in dot plots/histograms/box plots
  - c. Analyze data
  - d. Apply to real-world

***Student Outcomes:***

After successfully completing this course, the student will:

- Apply and extend previous understandings of arithmetic to algebraic expressions
- Apply and extend previous understandings of multiplication and division to divide fractions by fractions
- Apply and extend previous understandings of numbers to the system of rational numbers
- Compute fluently with multi-digit numbers and find common factors and multiples
- Develop understanding of statistical variability
- Reason about and solve one-variable equations and inequalities
- Represent and analyze quantitative relationships between dependent and independent variables
- Solve real-world and mathematical problems involving area, surface area, and volume
- Summarize and describe distributions
- Understand ratio concepts and use ratio reasoning to solve problems

***New Jersey Student Learning Standards******CAREER READY PRACTICES******CRP1 Act as a responsible and contributing citizen and employee.***

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

***CRP2 Apply appropriate academic and technical skills.***

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation

***CRP4 Communicate clearly and effectively and with reason.***

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and

organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

***CRP6. Demonstrate creativity and innovation.***

Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

***CRP7. Employ valid and reliable research strategies.***

Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.

***CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.***

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

***CRP11. Use technology to enhance productivity.***

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

***CRP12. Work productively in teams while using cultural global competence.***

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

***TECHNOLOGY***

**Standard 8.1 Educational Technology:** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

**Strand A: Technology Operations and Concepts:** Students demonstrate a sound understanding of technology concepts, systems and operations.

8.1.8.A.3- Use and/or develop a simulation that provides an environment to solve a real world problem or theory.

**Strand B. Creativity and Innovation:** Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

8.1.8.B.1- Synthesize and publish information about a local or global issue or event (ex. telecollaborative project, blog, school web).

**Strand D. Digital Citizenship:** Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

8.1.8.D.4- Assess the credibility and accuracy of digital content.

**Strand E: Research and Information Fluency:** Students apply digital tools to gather, evaluate, and use information.

8.1.8.E.1- Effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem.

**Standard 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:**

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

**Strand A. The Nature of Technology: Creativity and Innovation** Technology systems impact every aspect of the world in which we live.

8.2.8.A.2- Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.

**Strand C. Design:** The design process is a systematic approach to solving problems.

8.2.8.C.1- Explain how different teams/groups can contribute to the overall design of a product

8.2.8.C.4- Identify the steps in the design process that would be used to solve a designated problem.

## **21ST CENTURY LIFE AND CAREERS**

### **9.2 Career Awareness, Exploration, and Preparation**

#### **Strand B: Career Exploration**

9.2.8.B.3- Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

### **9.3 Career and Technical Education**

#### **Cluster: Science, Technology, Engineering & Mathematics Career Cluster**

9.3.ST-ET.5-Apply the knowledge learned in STEM to solve problems.

## **NEW JERSEY STUDENT LEARNING STANDARDS- MATH**

6.EE.A.1. Write and evaluate numerical expressions involving whole-number exponents

6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers

6.EE.A.2a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract  $y$  from 5" as  $5 - y$ .

6.EE.A.2b. 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

6.EE.A.2c. 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).

6.EE.A.3. Apply the properties of operations to generate equivalent expressions.

6.EE.A.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).

6.EE.B.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.EE.B.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.
- 6.EE.B.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.
- 6.EE.B.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
- 6.EE.C.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.
- 6.G.A.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.
- 6.G.A.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.
- 6.G.A.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.
- 6.G.A.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.
- 6.NS.A.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.
- 6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.
- 6.NS.B.3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- 6.NS.B.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.
- 6.NS.C.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.NS.C.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.
- 6.NS.C.6a. 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.
- 6.NS.C.6b. 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.
- 6.NS.C.6c. 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.
- 6.NS.C.7. Understand ordering and absolute value of rational numbers.

- 6.NS.C.7a. 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.
- 6.NS.C.7b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write  $-3\text{ }^{\circ}\text{C} > -7\text{ }^{\circ}\text{C}$  to express the fact that  $-3\text{ }^{\circ}\text{C}$  is warmer than  $-7\text{ }^{\circ}\text{C}$ .
- 6.NS.C.7c. 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.
- 6.NS.C.7d. 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.
- 6.NS.C.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.
- 6.RP.A.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- 6.RP.A.2. Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.
- 6.RP.A.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.
- 6.RP.A.3a. 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.
- 6.RP.A.3b. Solve unit rate problems including those involving unit pricing and constant speed.
- 6.RP.A.3c. 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.
- 6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- 6.SP.A.1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
- 6.SP.A.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.
- 6.SP.A.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.
- 6.SP.B.4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- 6.SP.B.5. Summarize numerical data sets in relation to their context, such as by:
- 6.SP.B.5a. Reporting the number of observations.
- 6.SP.B.5b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
- 6.SP.B.5c. 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.
- 6.SP.B.5d. 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.

### ***Mathematical Practices***

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.



3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **III. Proficiency Levels**

This curriculum is appropriate for all grade 6 students.

### **IV. Methods of Assessment**

#### **Student Assessment**

The teacher will provide a variety of assessments during the course of the year. The assessment may include but is not limited to: chapter and unit tests and quizzes, teacher observations, open-ended problems, cooperative work, and homework.

#### **Curriculum/Teacher Assessment**

The teacher will provide the subject area supervisor with suggestions for changes on an ongoing basis.

### **V. Grouping**

This curriculum is appropriate for all students in grade 6.

### **VI. Articulation/Scope & Sequence/Time Frame**

Course length is one year.

### **VII. Resources**

#### ***Texts/Supplemental Reading/References***

*Math in Focus*, Marshall Cavendish, 2015

### **VIII. Suggested Activities**

The following methods of instruction are suggested: teacher guided explorations, working in groups/working with a partner, working with manipulatives and discovery activities.

### **IX. Methodologies**

The following methods of instruction are suggested: lecture, working in groups/working with a partner, Google docs, demonstration, case studies, and simulations.

## **X. Interdisciplinary Connections**

At this grade level, connections to many other disciplines are appropriate and natural. Reading and writing become an integral part of the mathematics process. Connections with science are frequent throughout both curricula. Technology plays an important part in learning mathematics as well.

## **XI. Differentiating Instruction for Students with Special Needs: Students with Disabilities, Students at Risk, English Language Learners, and Gifted & Talented Students**

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways as they celebrate students' prior knowledge. By providing appropriately challenging learning, teachers can maximize success for all students.

Differentiating in this course includes but is not limited to:

*Differentiation for Support (ELL, Special Education, Students at Risk)*

- Peer mentoring on problems
- Differentiated teacher feedback on assignments
- Modeling out problems on whiteboard
- Visual aids as we project problems on whiteboard
- Study guides
- Tiered assignments
- Scaffolding of materials and assignments
- Re-teaching and review
- Guided note taking
- Exemplars of varied performance levels
- Multi-media approach to accommodating various learning styles

*Differentiation for Enrichment*

- Supplemental reading material for independent study
- Flexible grouping
- Tiered assignments
- Topic selection by interest
- Enhanced expectations for independent study
- Elevated questioning techniques using Webb's Depth of Knowledge matrix

## **XII. Professional Development**

The teacher will continue to improve expertise through participation in a variety of professional development opportunities.

## XII. Curriculum Map/Pacing Guide

| Unit Topic                                                                                                                                                                                                                                                                                                                                                                | Time Allocated | Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Standards                                                                                                                                                                                             | Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prime numbers and the number line <ul style="list-style-type: none"> <li>• Positive whole number/fractions/decimals on a number line</li> <li>• Inequality statements comparing numbers in different forms</li> <li>• Factors/multiples/Prime factorization</li> <li>• Squares and cubes</li> <li>• Square roots and Cube roots</li> <li>• Apply to real-world</li> </ul> | 3 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Reteach workbook chapter 1</li> <li>• Visual use of the number line</li> <li>• Anchor chart on “factor ninja - multiple monster”</li> <li>• IXL</li> <li>• KCF- Keep change flip fraction reminder</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul><br><i>For Enhancement:</i> <ul style="list-style-type: none"> <li>• Students can explore the Sieve of Eratosthenes</li> <li>• Brain work challenge question on Least Common Multiple</li> <li>• Enrichment workbook- chapter 1</li> <li>• IXL</li> </ul> | 6.NS.B.4<br>6.NS.C.6<br>6.NS.C.7a<br>6.EE.A.1<br>6.EE.A.2c<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5 | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Class discussion</li> <li>• Warm ups</li> <li>• Tiered questioning on prime numbers</li> <li>• Classwork</li> <li>• Homework</li> <li>• Collaborative Work on the Number Line</li> </ul><br><i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 1 Test: Positive Numbers and the Number Line</li> <li>• Possible quizzes</li> <li>• Possible Project(s):</li> <li>• Picture Project: Number Line</li> </ul> |
| Negative Numbers and the Number Line <ul style="list-style-type: none"> <li>• Negative integers on number line</li> <li>• Absolute value</li> <li>• Ordered pairs on a Coordinate Plane</li> <li>• Reflections</li> <li>• Lengths of segments</li> <li>• Apply to real-world</li> </ul>                                                                                   | 4 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Look for clue words such as: gain, above, and over = positive number and loss, below, and under = negative numbers)</li> <li>• reteach workbook chapter 2</li> <li>• Absolute value anchor chart</li> <li>• two steps forward, two steps back activity</li> <li>• coordinate plane treasure hunt</li> <li>• IXL</li> </ul>                                                                                                                                                                                                    | 6.NS.C.5<br>6.NS.C.6<br>6.NS.C.6a<br>6.NS.C.7a<br>6.NS.C.7b<br>6.NS.C.7c<br>6.NS.C.7d<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1                                        | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Class discussion</li> <li>• Exit tickets</li> <li>• Warm ups</li> <li>• Tiered questioning</li> <li>• Classwork on Negative numbers</li> <li>• Homework</li> <li>• Collaborative Work on the</li> </ul>                                                                                                                                                                                                                                |

| Unit Topic                                                                                                                                                                                                                                                                   | Time Allocated | Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students                                                                                                                                                                                                                                                                                                                                                                                                                    | Standards                                                                                                                                                                   | Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                                                                                                                                                                                                                                              |                | <ul style="list-style-type: none"> <li>• Interactive Links: <a href="#">Examples</a></li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Students can create a timeline of events using positive and negative numbers on a number line. (0 represents the year they were born, negative numbers represent things that happened before they were born, and positive numbers represent things that happened after they were born.)</li> <li>• Enrichment Chapter 2</li> <li>• Chapter 2 brainwork</li> <li>• IXL</li> </ul> | 8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5                                                                                                              | Number Line<br><br><i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 2 test: Negative Numbers and the Number line</li> <li>• Quizzes</li> <li>• Chapter 9 test: The Coordinate Plane</li> <li>• Possible Project(s):               <ul style="list-style-type: none"> <li>○ <a href="#">Coordinate Graphing Project</a></li> <li>○ <a href="#">Halloween Coordinate Graphing Project</a></li> </ul> </li> </ul>                                                                                                                                                                                                                                        |
| Multiplying and Dividing Fractions and Decimals <ul style="list-style-type: none"> <li>• Adding and Subtracting Fractions and Decimals</li> <li>• Fraction Division</li> <li>• Decimal Multiplication</li> <li>• Dividing Decimals</li> <li>• Apply to real-world</li> </ul> | 3 Weeks        | <p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Fractions, Decimals, Percents Foldable</a></li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Chapter 3 brainwork</li> <li>• IXL</li> <li>• Chapter 3 Enrichment Practice</li> <li>• Chapter 3 Extra practice</li> </ul>                                                                                                                                           | 6.NS.A.1<br>6.NS.B.2<br>6.NS.B.3<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5 | <p><i>Formative Assessments:</i></p> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Class discussion on Real World Applications</li> <li>• Exit tickets</li> <li>• Warm ups</li> <li>• Do now on Fraction Operations</li> <li>• Tiered questioning</li> <li>• Homework</li> <li>• Collaborative Work</li> </ul> <p><i>Summative Assessments:</i></p> <ul style="list-style-type: none"> <li>• Chapter 3 test: Multiplying and Dividing Fractions and Decimals</li> <li>• Quizzes</li> <li>• Possible Projects               <ul style="list-style-type: none"> <li>○ <a href="#">Shopping: Multiplying &amp; Dividing Decimals</a></li> </ul> </li> </ul> |

| Unit Topic                                                                                                                                                                                                                                        | Time Allocated | Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students                                                                                                                                                                                                                                                                                                                                                                                                         | Standards                                                                                                                                                                                    | Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Ratios <ul style="list-style-type: none"> <li>• Compare two quantities</li> <li>• equivalent ratios</li> <li>• missing terms in ratios</li> <li>• Apply to real-world</li> </ul>                                                                  | 2 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Cube visual to show comparisons</li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul> <i>For Enhancement:</i> <ul style="list-style-type: none"> <li>• Serve More Serve Less Recipe Builder Activity</li> <li>• Enrichment Chapter 4</li> <li>• IXL</li> <li>• Brainwork Challenge on Ratios</li> <li>• Extra Practice Chapter 4</li> </ul>                                                                                                           | 6.RP.A.1<br>6.RP.A.3<br>6.RP.A.3a<br>6.RP.A.3d<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5    | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Exit tickets</li> <li>• Do now</li> <li>• Tiered questioning on Ratios</li> <li>• Classwork</li> <li>• Homework</li> <li>• Collaborative Work on Real World Applications</li> </ul><br><i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 4 test: Ratios</li> <li>• Possible quizzes</li> <li>• Possible Projects               <ul style="list-style-type: none"> <li>○ <a href="#">Math &amp; Art Mandrian Ratio</a></li> </ul> </li> </ul> |
| Rates and Percents <ul style="list-style-type: none"> <li>• Rates and unit rates</li> <li>• Understanding percents</li> <li>• Fractions/decimals/percent equivalencies</li> <li>• Percent of a quantity</li> <li>• Apply to real-world</li> </ul> | 5 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Cube visual to show comparisons</li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul> <i>For Enhancement:</i> <ul style="list-style-type: none"> <li>• Enrichment chapter 5</li> <li>• Brainwork challenge on unit rates</li> <li>• Water absorption rate of different paper towels activity</li> <li>• Survey question: turned to percent-turned into a graph</li> <li>• Enrichment chapter 6</li> <li>• Brainwork challenge on percent -</li> </ul> | 6.RP.A.2.<br>6.RP.A.3<br>6.RP.A.3.b<br>6.RP.A.3.c<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5 | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Class discussion</li> <li>• Exit tickets</li> <li>• Tiered questioning on Rates</li> <li>• Classwork on Application of Percents</li> <li>• Homework</li> <li>• Collaborative Work on Percents</li> </ul><br><i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 5 Test: Rates</li> <li>• Quizzes</li> </ul>                                                                                                                                    |

| Unit Topic                                                                                                                                                                                                                                                                                                           | Time Allocated | Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students                                                                                                                                                                                                                                                                                                                           | Standards                                                                                                                                                                                               | Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                                                                                                                                                                                                                                                                                                      |                | Chapters 5 and 6 <ul style="list-style-type: none"> <li>• IXL</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Possible Projects               <ul style="list-style-type: none"> <li>○ Grocery Ad Unit Rate Project</li> <li>○ <a href="#">Fraction, Decimal, &amp; Percent Pixel Project</a></li> </ul> </li> <li>• Chapter 6 Test: Percents</li> </ul>                                                                                                                                                           |
| Algebraic Expressions <ul style="list-style-type: none"> <li>• Writing Algebraic Expressions</li> <li>• Evaluation Algebraic Expressions</li> <li>• Simplifying Algebraic Expressions</li> <li>• Combining Like Terms</li> <li>• Expanding/Factoring Algebraic Expressions</li> <li>• Apply to real-world</li> </ul> | 4 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Algebra tiles</li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul><br><i>For Enhancement:</i> <ul style="list-style-type: none"> <li>• Brainwork challenge chapter 7 and 8</li> <li>• Students create their own algebraic expressions and solve with a partner</li> <li>• Extra practice for chapter 8</li> <li>• Enrichment chapter 7 and 8</li> <li>• IXL</li> </ul> | 6.EE.A.1<br>6.EE.A.2.a<br>6.EE.A.2.b<br>6.EE.A.3<br>6.EE.B.6<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5 | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Class discussion on Applications</li> <li>• Tiered questioning on Simplifying</li> <li>• Classwork</li> <li>• Homework on Algebraic Expressions</li> <li>• Collaborative Work</li> </ul><br><i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 7 test: Algebraic Expressions</li> <li>• Quizzes</li> </ul> |
| Equations and Inequalities <ul style="list-style-type: none"> <li>• Solving one-step Algebraic equations</li> <li>• Writing linear equations</li> <li>• Solving inequalities</li> <li>• Apply to real-world</li> </ul>                                                                                               | 3 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Equation mats and algebra tiles</li> <li>• Cups and unit cubes</li> <li>• Magnetic letters &amp; numbers</li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul><br><i>For Enhancement:</i> <ul style="list-style-type: none"> <li>• Enrichment practice</li> <li>• Brain work Chapter 8</li> <li>• Illuminations</li> <li>• Extra practice Chapter 8</li> </ul>          | 6.EE.A.2.c<br>6.EE.B.5<br>6.EE.B.7<br>6.EE.B.8<br>6.EE.C.9<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5   | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Teacher observations</li> <li>• Class discussion</li> <li>• Exit tickets</li> <li>• Warm ups on Equations and Inequalities</li> <li>• Homework</li> <li>• Collaborative Work on Applications</li> </ul><br><i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 8 Test: Equations and</li> </ul>                                             |

| Unit Topic                                                                                                                                                                                                                         | Time Allocated | Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students                                                                                                                                                                                                                                                                                                            | Standards                                                                                                                                                                               | Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                                                                                                                                                                                                                    |                | <ul style="list-style-type: none"> <li>IXL</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                         | Inequalities <ul style="list-style-type: none"> <li>Quizzes</li> <li>Possible Projects               <ul style="list-style-type: none"> <li>One Step Equations</li> <li>Solving Inequalities</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                           |
| Area of polygons <ul style="list-style-type: none"> <li>Area of triangles</li> <li>Area of parallelograms and trapezoids</li> <li>Area of other polygons</li> <li>Area of composite figure</li> <li>Apply to real-world</li> </ul> | 4 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>Area formula anchor chart</li> <li>Identify the shape picture sort</li> <li>IXL</li> <li>Interactive Links: <a href="#">Examples</a></li> </ul> <i>For Enhancement:</i> <ul style="list-style-type: none"> <li>Brainwork challenge chapter 10</li> <li>Extra practice</li> <li>Enrichment</li> <li>IXL</li> </ul>                                                                     | 6.EE.A.2.c<br>6.G.A.1<br>6.G.A.2<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5             | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>Teacher observations</li> <li>Class discussion on Composite Figures</li> <li>Exit tickets</li> <li>Tiered questioning on Areas</li> <li>Homework</li> <li>Collaborative Work on Arease</li> </ul> <i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>Chapter 10 test: Area of Polygons</li> <li>Quizzes</li> <li>Possible Projects               <ul style="list-style-type: none"> <li>Tangram Picture Project</li> </ul> </li> </ul> |
| Surface area and volume of solids <ul style="list-style-type: none"> <li>Identify parts of a 3D figure</li> <li>Nets of solids</li> <li>Surface area of solids</li> <li>Volume of prisms</li> <li>Apply to real-world</li> </ul>   | 3 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>3d figures (visual)</li> <li>3d shapes anchor chart</li> <li>Volume and surface area anchor chart</li> <li>IXL</li> <li>Interactive Links: <a href="#">Examples</a></li> <li>Hands on activity chapter 12</li> </ul> <i>For Enhancement:</i> <ul style="list-style-type: none"> <li>“Scaled up exercise”</li> <li>Extra practice</li> <li>Enrichment practice</li> <li>IXL</li> </ul> | 6.EE.A.1<br>6.EE.A.2.c<br>6.G.A.2<br>6.G.A.4<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5 | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>Teacher observations</li> <li>Class discussion on Real World Applications</li> <li>Exit tickets</li> <li>Do now</li> <li>Classwork</li> <li>Homework</li> <li>Collaborative Work on Nets</li> </ul> <i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>Chapter 12 test: Surface Area and Volume of Solids</li> </ul>                                                                                                                   |

| Unit Topic                                                                                                                                                                                                                                                         | Time Allocated | Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students                                                                                                                                                                                                                                                                                                                                                                                                                          | Standards                                                                                                                                                                                                                                                   | Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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|                                                                                                                                                                                                                                                                    |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Chapter 12 Nets &amp; 3D Figures</li> <li>• Possible Project(s)               <ul style="list-style-type: none"> <li>○ <a href="#">Surface Area Project</a></li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                         |
| Introduction to Statistics and Measures of Central Tendency <ul style="list-style-type: none"> <li>• Collecting and tabulating data</li> <li>• Displaying data in dot plots/histograms/box plots</li> <li>• Analyze data</li> <li>• Apply to real-world</li> </ul> | 6 weeks        | <i>For Support:</i> <ul style="list-style-type: none"> <li>• Mean, median, range and mode song</li> <li>• Mean, median, range and mode anchor chart</li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul> <i>For Enhancement:</i> <ul style="list-style-type: none"> <li>• Students can explore the Sieve of Eratosthenes</li> <li>• Extra Practice- chapter 13</li> <li>• Brain work challenge problems</li> <li>• Enrichment practice chapter 13</li> <li>• IXL</li> <li>• Interactive Links: <a href="#">Examples</a></li> </ul> | 6.SP.A.1<br>6.SP.A.2<br>6.SP.A.3<br>6.SP.B.4<br>6.SP.B.5<br>6.SP.B.5.a<br>6.SP.B.5.b<br>6.SP.B.5.c<br>6.SP.B.5.d<br>CRP1,2,4,6,7,8,11,12<br>8.1.8.A.3, 8.1.8.B.1,<br>8.1.8.D.4, 8.1.8.E.1<br>8.2.8.A.2, 8.2.8.C.1,<br>8.2.8.C.4<br>9.2.8.B.3<br>9.3.ST-ET.5 | <i>Formative Assessments:</i> <ul style="list-style-type: none"> <li>• Class discussion</li> <li>• Exit tickets</li> <li>• Do now</li> <li>• Tiered questioning on Statistics</li> <li>• Classwork</li> <li>• Homework on Plots and Histograms</li> <li>• Collaborative Work</li> </ul> <i>Summative Assessments:</i> <ul style="list-style-type: none"> <li>• Chapter 13 Test: Introduction to Statistics</li> <li>• Chapter 14 Test: Measures of Central Tendency</li> <li>• Quizzes</li> <li>• Possible Project(s)               <ul style="list-style-type: none"> <li>○ <a href="#">Create A Histogram</a></li> </ul> </li> </ul> |