



# Stafford Township School District

Mathematics Curriculum

Grade 6

Adopted: 08/17/2017

Updated: 01/09/2019, 01/06/2020, 8/3/2021 (enVisions)

## Statement of Purpose

The New Jersey Student Learning Standards for Mathematics challenges us to ensure focus, coherence, and rigor in our mathematics curriculum across all elementary grade levels. Additionally, through the Standards for Mathematical Practice, students are encouraged to develop the application of math skills while solving real world problems.

To gain a greater focus, the standards place an emphasis on fewer skills, deepening and strengthening the foundations, thus providing students with the knowledge to apply the skills to situations inside and outside of the classroom. Grades 3 – 5 focus on concepts, skills and problem solving related to multiplication and division of whole numbers and fractions. Within our curriculum, focus is maintained by building students' conceptual skills while developing the deeper understanding and real world application.

Coherence is supported by the alignment of the curriculum, instruction, and assessments. The repeated domains, within the standards, progress through the elementary grades to allow for developmentally appropriate attainment of learning outcomes. The curriculum's suggested pacing allows for the important balance of developing conceptual understanding and procedural skills. Instructional decisions are guided by the use of Board approved resources, problem-based learning and real-world applications that incorporate technology and the 21st century skills.

Rigor, as addressed in the standards, has three main components: conceptual understanding, procedural skills and fluency, and application. The curriculum has been designed with this in mind; there is a progression of skills that guide students from the conceptual phase to the application component. Each understanding of the concepts applies to a relevant, real world experience. The Standards for Mathematical Practice guide educators in helping students develop "processes and proficiencies" through problem solving, reasoning and proof, communication, representations, and connections, adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition. From these standards, each instructional cycle focuses on a few to enable students to develop deeper understanding.

The Standards for Mathematical Practice describe ways in which developing student practitioners, of the discipline of mathematics, increasingly promote engagement with the subject matter as they grow in mathematical maturity and expertise. This is supported through the scope and sequence of the curriculum.

**Primary Interdisciplinary Connections:** Science, Social Studies, Language Arts, Technology, and 21st Century Life and Careers. For further clarification see New Jersey Student Learning Standards at <http://www.nj.gov/education/cccs/>

**21st Century Themes:** Through instruction in life and career skills, all students acquire the knowledge and skills needed to prepare for life as citizens and workers in the 21st century. For further clarification, see <http://www.nj.gov/education/aps/cccs/career/>

### **Inclusivity/LGBTQ/Disabilities**

New Jersey Legislation [C.18A:35-4.35](#) requires that the history of disabled and LGBT persons be included in middle and high school curriculum. Instruction shall focus on the political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum of middle school and high school students as part of the district's implementation of the New Jersey Student Learning Standards. In addition, policies, and procedures pertaining to inclusive instructional materials are outlined in Legislation C.18A:35-4.36. Schools shall adopt inclusive instructional materials that portray the cultural and economic diversity of society including the political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people, where appropriate. The instruction and materials of the course will be made inclusive and representative of all individuals and various groups of people. This course will address the following:

- how students feel about the group(s) they identify with and if they are represented in the texts, visual/media representations, and materials used in math
- Incorporate inclusive language into real world math examples and word problems
- Ensure that word problems are inclusive, and use this opportunity to highlight diversity in names, gender, and family structure. For example, "Angelique and her moms bought fifteen apples from the market." or "Miguel and their dads love to draw with chalk."
- Analyze information from sources that represent the LGBTQ community and people with disabilities
- Avoid binary assumptive language and use appropriate gender inclusive language in the classroom.
- Use appropriate gender terms, preferred names, and inclusive language to ensure all students feel safe and represented in the educational process.
- Whose voice is missing from any of the course's texts/visual/media representations? Why?
- Modifications can be made to accommodate any students with specific needs, views and experiences

## Grade 6 Overview

### **Ratios and Proportional Relationships**

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

### **The Number System**

- Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- Compute fluently with multi-digit numbers and find common factors and multiples.
- Apply and extend previous understandings of numbers to the system of rational numbers.

### **Expressions and Equations**

- Apply and extend previous understandings of arithmetic to algebraic expressions.
- Reason about and solve one-variable equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.

### **Geometry**

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

### **Statistics and Probability**

- Develop understanding of statistical variability.
- Summarize and describe distributions.

## **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.

## Supporting Mathematical Practices through Questioning

<p><b>Practice 1:</b> Make sense of problems and persevere in solving them</p>	<ul style="list-style-type: none"> <li>● What is the problem asking?</li> <li>● How will you use that information?</li> <li>● What other information do you need?</li> <li>● Why did you choose that operation?</li> <li>● What is another way to solve that problem?</li> <li>● What did you do first? Why?</li> <li>● What can you do if you don't know how to solve a problem?</li> <li>● Have you solved a problem like this one?</li> <li>● When did you realize your first method would not work?</li> <li>● How do you know your answer makes sense?</li> </ul>
<p><b>Practice 2:</b> Reason abstractly and quantitatively</p>	<ul style="list-style-type: none"> <li>● What is a situation that could be represented by this equation?</li> <li>● What operation did you use to represent the situation</li> <li>● Why does that operation represent the situation?</li> <li>● What properties did you use to find the answer?</li> <li>● How do you know the answer is reasonable?</li> </ul>
<p><b>Practice 3:</b> Construct viable arguments and critique the reasoning of others</p>	<ul style="list-style-type: none"> <li>● Will that method always work?</li> <li>● How do you know?</li> <li>● What do you think about what the other student said?</li> <li>● Who can tell us about a different method?</li> <li>● What do you think will happen if ...?</li> <li>● When would that not be true?</li> <li>● Why do you agree/disagree with what the other student said?</li> <li>● What do you want to ask the other student about that method?</li> <li>● How does that drawing support your work?</li> </ul>
<p><b>Practice 4:</b> Model with mathematics</p>	<ul style="list-style-type: none"> <li>● Why is that a good model for this problem?</li> <li>● How can you use a simpler problem to help you find the answer?</li> <li>● What conclusions can you make from your model?</li> <li>● How would you change your model if...?</li> </ul>

<p><b>Practice 5:</b> Use appropriate tools strategically</p>	<ul style="list-style-type: none"> <li>● What could you use to help you solve the problem?</li> <li>● What strategy could you use to make the calculation easier?</li> <li>● How would estimation help you solve that problem?</li> <li>● Why did you decide to use...?</li> </ul>
<p><b>Practice 6:</b> Attend to precision</p>	<ul style="list-style-type: none"> <li>● How do you know your answer is reasonable?</li> <li>● How can you use math vocabulary in your answer?</li> <li>● How do you know those answers are equivalent?</li> <li>● What does that mean?</li> </ul>
<p><b>Practice 7:</b> Look for and make use of structure</p>	<ul style="list-style-type: none"> <li>● How did you discover the pattern?</li> <li>● What other patterns can you find?</li> <li>● What rule did you use to make this group?</li> <li>● Why can you use that property in this problem?</li> <li>● How is that like...?</li> </ul>
<p><b>Practice 8:</b> Look for and express regularity in repeated reasoning</p>	<ul style="list-style-type: none"> <li>● What do you remember about...?</li> <li>● What happens when...?</li> <li>● What if you...instead of...?</li> <li>● What might be a shortcut for...?</li> </ul>

### Mathematical Practices Rubric

Mathematical Practice	4	3	2	1
<b>MP #1</b>	Made sense of problems, evaluated approaches, and persevere in solving them.	Made sense of problems and persevere in solving them.	Made sense of problems.	With support, made sense of problems.
<b>MP #2</b>	Dug deeply into a problem to analyze and reason abstractly and quantitatively.	Reasoned abstractly and quantitatively.	Represented a complex problem mathematically.	Represented a basic problem mathematically.
<b>MP #3</b>	Analyzed situations, breaking them into cases and building a logical argument with counter-examples. Communicated ideas and responded to others. Provided critique and feedback to others.	Constructed viable arguments and critique the reasoning of others.	Constructed viable arguments.	Compared arguments.
<b>MP #4</b>	Analyzed complex relationships mathematically to solve problems.	Made assumptions and approximations to simplify complex problems.	Applied reasoning to plan an event or solve a problem.	Wrote an equation to describe a situation.
<b>MP #5</b>	Used appropriate tools strategically to solve problems and display solutions.	Used appropriate tools strategically.	Identified available tools to solve a problem and when to use them.	Identified available tools to solve a problem.



<b>MP #6</b>	Attends to precision and details when calculating and communicating. Examined details of claims and made explicit use of definitions.	Attends to precision and details when calculating and communicating.	Where accurate when calculating and communicating.	Where clear when calculating and communicating.
<b>MP #7</b>	Recognized complex patterns and could see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. Applied patterns to solve problems.	Recognized complex patterns and used those to solve problems.	Recognized complex patterns.	Recognized patterns.
<b>MP #8</b>	Maintained oversight of the whole process while paying attention to details. Continued to evaluate the reasonableness of intermediate results.	Looked for and expressed regularity in repeated reasoning. Found general methods or shortcuts.	Found methods that can be used in multiple applications.	Identified efficient methods in solving some problems.

The Number System		Topics 1 & 2; Duration: September-November 45 days
Standards		
<b>A.</b>	Apply and extend previous understandings of multiplication and division to divide fractions by fractions	
<b>6.NS.A.1</b>	Interpret and compute quotients of fractions, and solve word problems involving division of fraction, e.g., by using visual fraction models and equations to represent the problem.	
<b>B.</b>	Compute fluently with multi-digit numbers and find common factors and multiples	
<b>6.NS.B.2</b>	Fluently divide multi-digit numbers using the standard algorithm.	
<b>6.NS.B.3</b>	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	
<b>6.NS.B.4</b>	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 $4(9 + 2)$ .	
<b>C.</b>	Apply and extend previous understandings of numbers to the system of rational numbers	
<b>6.NS.C.5</b>	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.	
<b>6.NS.C.6</b>	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.	
<b>6.NS.C.6A</b>	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>6.NS.C.6B</b>	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>6.NS.C.6C</b>	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.
<b>6.NS.C.7</b>	Understand ordering and absolute value of rational numbers.
<b>6.NS.C.7A</b>	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>6.NS.C.7B</b>	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
<b>6.NS.C.7C</b>	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. <i>For example, for an account balance of -30 dollars, write <math> -30  = 30</math> to describe the size of the debt in dollars.</i>
<b>6.NS.C.7D</b>	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.
<b>6.NS.C.8</b>	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.
	<b>Interdisciplinary Connections</b>
	<b>ELA Standards</b>
<b>SL.6.1.B</b>	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
	<b>21<sup>st</sup> Century Life and Careers</b>
	Century Life and Career Skills: 21st century life and career skills enable students to make informed decisions that prepare them to engage as active citizens in a dynamic global society and to successfully meet the challenges and opportunities of the 21st century global workplace. <a href="http://www.state.nj.us/education/aps/cccs/career/">http://www.state.nj.us/education/aps/cccs/career/</a>
	<b>9.1 Personal Financial Literacy</b> This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
	<b>9.2 Career Awareness, Exploration, and Preparation</b>

	<p>This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.</p> <p><b>9.3 Career and Technical Education</b>  This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.</p> <p style="text-align: center;"><b>Career Ready Practices</b></p> <p>CRP1. Act as a responsible and contributing citizen and employee.  CRP2. Apply appropriate academic and technical skills.  CRP3. Attend to personal health and financial well-being.  CRP4. Communicate clearly and effectively and with reason.  CRP7. Employ valid and reliable research strategies.  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.  CRP10. Plan education and career paths aligned to personal goals.  CRP11. Use technology to enhance productivity.  CRP12. Work productively in teams while using cultural global competence.</p>
	<b>Technology Standards</b>
<b>8.1.8.A.1</b>	Demonstrate knowledge of a real world problem using digital tools.
<b>Essential Understandings</b>	<b>Essential Questions</b>
<p><i>Students will understand that.....</i></p> <ul style="list-style-type: none"> <li>● The magnitude of numbers affects the outcome of operations on them.</li> <li>● Computational fluency includes understanding the meaning and the appropriate use of numerical operations.</li> <li>● Operations apply to all types of numbers.</li> <li>● Connections exist between pre-fraction skills (GCF, LCM) and fraction operations, enabling fluent &amp; efficient computation.</li> </ul>	<ul style="list-style-type: none"> <li>● How do you write, interpret and use rational numbers?</li> <li>● How can you use the relationship between multiplication and division to divide fractions?</li> <li>● How do you solve real word problems involving whole numbers and decimals?</li> </ul>

<ul style="list-style-type: none"> <li>• All numbers have an exact position on the number line.</li> <li>• All numbers have relationships with other numbers and with zero on the number line.</li> </ul>	
<b>Evidence of Student Learning</b>	
<b>Performance Tasks:</b> Activities to provide evidence for student learning of content and cognitive skills.	<b>Other Assessments</b>
<p><b>STEM Project: Improve Your School</b>  In this project, students are introduced to the science of engineering. They learn about the ways that engineers solve problems to improve products. Students begin to think like engineers and identify needed improvements around their school. Apply the engineering design process to research, plan, test, propose, and present a solution.</p>	<p><b>Formative Assessments</b></p> <ul style="list-style-type: none"> <li>• Oral Questioning</li> <li>• Choral Response</li> <li>• Partners</li> <li>• Student Conference</li> <li>• Self-Assessment</li> <li>• Think-Pair-Share</li> <li>• Hand Signals</li> <li>• Peer Reflection</li> <li>• Graphic Organizers</li> <li>• Constructive Response</li> <li>• Teacher Observation</li> <li>• Exit Tickets</li> <li>• Class work</li> </ul> <p><b>Summative Assessments</b></p> <ul style="list-style-type: none"> <li>• Chapter Tests</li> <li>• Quizzes</li> <li>• Assessments</li> <li>• Projects</li> <li>• Alternative Assessments</li> <li>• Benchmark Tests</li> <li>• Standardized Tests</li> <li>• Modifications</li> </ul>

	<p><b>Benchmark Assessment</b></p> <ul style="list-style-type: none"> <li>● EnVision Benchmark Assessment</li> <li>● I-Ready Assessments</li> </ul> <p><b>Alternative Assessments</b></p> <ul style="list-style-type: none"> <li>● Untimed Fact Practice Assessment</li> <li>● Manipulative Driven Assessment</li> <li>● Modified/Teacher Created Chapter Tests</li> <li>● Modified/Teacher Created Mid-Chapter Quiz</li> <li>● Visual Representation of Skills Assess</li> <li>● Modified Classwork Assignments</li> <li>● Modified Benchmarks</li> <li>● EnVision Reteach Activities and Worksheets</li> <li>● Project Based Assessments with Scoring Rubric</li> </ul>
<b>Mathematical Practice</b>	
<p>MP 2: Reason abstractly and quantitatively  MP 3: Construct viable arguments and critique the reasoning of others.  MP 4: Model with mathematics.  MP 7: Look for and make use of structure</p>	
<b>Vocabulary</b>	
<p>Reciprocal, integers, opposite, rational number, absolute value, coordinate plane, ordered pair, origin, quadrant, x- and y-axes</p>	
<b>Knowledge and Skills</b>	
<b>Content</b>	<b>Skills</b>
<ul style="list-style-type: none"> <li>● Apply and extend previous understandings of multiplication and division to divide fractions by fractions.</li> <li>● Compute fluently with multi-digit numbers and find</li> </ul>	<p>Students will be able to ...</p> <ul style="list-style-type: none"> <li>● Fluently divide multi-digit numbers</li> <li>● Write the prime factorization of numbers.</li> <li>● Find the least common multiple of two whole</li> </ul>

<p>common factors and multiples.</p> <ul style="list-style-type: none"> <li>• Apply and extend previous understandings of numbers to the system of rational numbers.</li> </ul>	<p>numbers.</p> <ul style="list-style-type: none"> <li>• Find the greatest common factor of two whole numbers.</li> <li>• Solve problems involving greatest common factor by using the strategy, “Draw a diagram”.</li> <li>• Fluently add and subtract multi digit decimals.</li> <li>• Fluently multiply multi digit decimals.</li> <li>• Fluently divide decimals by whole numbers.</li> <li>• Fluently divide whole numbers and decimals by decimals.</li> <li>• Convert between fractions and decimals.</li> <li>• Compare and order fractions and decimals.</li> <li>• Multiply fractions.</li> <li>• Simplify fractional factors by using the greatest common factor.</li> <li>• Use a model to show division of fractions.</li> <li>• Use compatible numbers to estimate quotients of fractions and mixed numbers.</li> <li>• Understand positive and negative numbers and use them to represent real world quantities.</li> <li>• Compare and order integers.</li> <li>• Plot rational numbers on a number line and use a number line to identify opposites.</li> <li>• Compare and order rational numbers</li> </ul>
<b>Instructional Plan</b>	
<b>Suggested Activities</b>	<b>Resources</b>
<ol style="list-style-type: none"> <li>1. Multiply and divide whole numbers with grid paper.</li> <li>2. Model decimals in tenths and hundredths using</li> </ol>	enVision Textbook; grid paper, colored pencils, fraction strips,

<p>colored pencils.</p> <ol style="list-style-type: none"> <li>3. Relate mixed numbers and fractions greater than 1 using fraction circles.</li> <li>4. Use fraction strips to model and use benchmark fractions.</li> <li>5. Plot ordered pairs in the first quadrant of a coordinate plane.</li> </ol>	
<p><b>enVision Topic 1 “Pick A Project” Choice Activities -</b> Students will choose a project:</p> <ul style="list-style-type: none"> <li>● <i>Project 1A –Board Game Mania</i> : Students will make their own board game</li> <li>● <i>Project 1B –Event Planning</i>: Students will plan the menu for a school fundraiser.</li> <li>● <i>Project 1C –Visiting Gardens</i>: Students will design a vegetable and herb garden</li> <li>● <i>Project 1D-Tigers</i>: Students will present a proposal for a tiger exhibit</li> </ul>	<p>enVision Pick a Project Descriptions and Materials (listed below):</p> <ul style="list-style-type: none"> <li>● Project 1A: number cubes (optional), game pieces (optional), spinners (optional), arts and crafts supplies</li> <li>● Project 1B: construction paper, markers</li> <li>● Project 1C: arts and craft supplies</li> <li>● Project 1D: construction paper, markers</li> </ul>
<p><b>Math Literature</b></p>	
<p>Textbook: <i>EnVision</i>, Savvas Learning Company LLC, 2021</p> <p><i>Math Curse</i> by Jon Scieszka  <i>Secrets, Lies, and Algebra</i> by Wendy Lichtman  <i>Fraction Action</i> by Loreen Leedy  <i>Jim and the Beanstalk</i> by Raymond Briggs</p>	
<p><b><u>Inclusivity/LGBTQ and Individuals with Disabilities Resources</u></b></p>	
<ul style="list-style-type: none"> <li>● Use word problems to incorporate inclusivity examples</li> <li>● Mathematicians of the African Diaspora - a website that highlights the accomplishments of African Americans in math  <a href="http://www.math.buffalo.edu/mad/00.INDEXmad.html">http://www.math.buffalo.edu/mad/00.INDEXmad.html</a></li> <li>● Biographies of Women mathematicians - <a href="https://www.agnesscott.edu/lriddle/women/women.htm">https://www.agnesscott.edu/lriddle/women/women.htm</a></li> </ul>	



- Incorporate studies/ examples in ADA such as wheelchair accessibility- [https://www.ada.gov/restriping\\_parking/restriping2015.html](https://www.ada.gov/restriping_parking/restriping2015.html)
- Math article from GLSEN with examples on how to be inclusive with math <https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities>
- Website for LGBTQ mathematicians and history <http://lgbtmath.org/>
- Mathematically Gifted and Black- <http://www.mathematicallygiftedandblack.com/>
- Latin and Hispanic Mathematicians -<http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf>
- Black Female Mathematicians- <http://mentalfloss.com/article/71576/black-female-mathematicians-who-sent-astronauts-space>
- NewsELA article- Retooling computer science courses- [https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection\\_id=339](https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection_id=339)
- NewsELA article- Proud to be Different in STEM- [https://newsela.com/read/lib-proud-to-be-different-stem/id/2001021838/?collection\\_id=2000000263](https://newsela.com/read/lib-proud-to-be-different-stem/id/2001021838/?collection_id=2000000263)

### WEBSITES

Interactive arithmetic lessons  
 Online Resources  
 Online Videos  
 Interactive Games  
 Games, PowerPoint, Instructional Aides

enVision Math-Textbook Resources  
<https://www.savvas.com/index.cfm?locator=PS38Dv>

[Wizer.me](http://Wizer.me)  
[Edulastic](http://Edulastic)  
[Quizizz](http://Quizizz)  
[iReady](http://iReady)  
[Xtra Math](http://Xtra Math)  
[I Know It](http://I Know It)  
[Prodigy](http://Prodigy)  
[Khan Academy](http://Khan Academy)  
[Flocabulary](http://Flocabulary)

### Accommodations & Modifications

#### Basic Skills

- 1:1
- Grab and Go centers
- Repeating Directions
- Small Group
- Manipulatives
- Interactive Notes
- Reteach/Enrichment Pages for each lesson (RTI)

<p><b>Economically Disadvantaged</b></p> <ul style="list-style-type: none"> <li>● 1:1</li> <li>● Grab and Go centers</li> <li>● Repeating Directions</li> <li>● Small Group</li> <li>● Manipulatives</li> <li>● Interactive Notes</li> <li>● Reteach/Enrichment Pages for each lesson (RTI)</li> </ul>
<p><b>Gifted and Talented</b></p> <ul style="list-style-type: none"> <li>● Open ended/abstract questions to activate higher level thinking</li> <li>● Alternative modes of communication</li> <li>● Student developed extension activities</li> <li>● Plan self-directed inquiry</li> </ul>
<p><b>English Language Learners</b></p> <ul style="list-style-type: none"> <li>● Elicit Prior Knowledge</li> <li>● Rephrase</li> <li>● Understand Context</li> <li>● Scaffold Language</li> <li>● Restate</li> <li>● Cooperative Grouping</li> <li>● Peer Buddy</li> </ul>
<p><b>Special Education/504 Plans</b></p> <ul style="list-style-type: none"> <li>● One on one instruction</li> <li>● Adaptive devices</li> <li>● Provide differentiated instruction as needed</li> <li>● Follow all IEP modifications/504 plan</li> <li>● Have manipulatives and other math resources available for student use</li> <li>● Incorporate small group instruction</li> <li>● Utilize visual charts/cues</li> <li>● Facilitate successful experiences</li> <li>● Provide tutoring if needed</li> <li>● Provide positive praise to increase motivation</li> </ul>
<p><b>Students at Risk of Failure:</b></p>

- Ensure child has access to all appropriate academic resources both in school and at home
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences
- Provide tutoring if needed
- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials
- Offer encouragement and understanding
- Give choice to provide a sense of control

<b>Ratio and Proportional Relationships</b>		<b>Topics 5 and 6 Duration: February-April 42 Days</b>
<b>Standards</b>		
<b>A</b>	Understand ratio concepts and use ratio reasoning to solve problems.	
<b>6.RP.A.1</b>	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."	
<b>6.RP.A.2</b>	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. 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." <sup>1</sup>	
<b>6.R.P.A.3</b>	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.	
<b>6.R.P.A.3a</b>	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>6.R.P.A.3b</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?	
<b>6.RP.A.3c</b>	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.	
<b>6.RP.A.3d</b>	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	
<b>Interdisciplinary Connections</b>		
<b>ELA Standards</b>		
<b>SL.6.1.B</b>	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.	
<b>21<sup>st</sup> Century Life and Careers</b>		
Century Life and Career Skills: 21st century life and career skills enable students to make informed decisions that prepare them to engage as active citizens in a dynamic global society and to successfully meet the challenges and opportunities of the 21st century global workplace.		

<http://www.state.nj.us/education/aps/cccs/career/>

**9.1 Personal Financial Literacy**

This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

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

This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

**9.3 Career and Technical Education**

This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.

**Career Ready Practices**

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP10. Plan education and career paths aligned to personal goals.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

**Technology Standards**

**8.1.8.A.1**

Demonstrate knowledge of a real world problem using digital tools.

**Essential Understandings**

***Students will understand that....***

- A ratio is a special relationship between two quantities where for every x units of one quantity there are y units of another
- In a proportional relationship, there are an infinite number of ratios equal to the lowest terms or constant

**Essential Questions**

- How can you use ratios to express relationships and solve problems?
- How can you use ratio reasoning to solve percent problems?

<p>ratio. Equal ratios can be found by multiplying both terms by the same non-zero number.</p> <ul style="list-style-type: none"> <li>• A unit rate is a rate that compares a quantity to one unit of another quantity.</li> <li>• A formula is a common relationship between quantities expressed as an equation.</li> <li>• A special proportional relationship involves distance (d), rate (r), and time (t). The formula showing this relationship is <math>d = r \times t</math>.</li> </ul>	<ul style="list-style-type: none"> <li>• How can you use measurements to help you describe and compare objects?</li> </ul>
<p><b>Evidence of Student Learning</b></p>	
<p><b>Performance Tasks:</b> Activities to provide evidence for student learning of content and cognitive skills.</p>	<p><b>Other Assessments</b></p>
<p><b>STEM Project: Get into Gear</b>          In this project, students explore gear ratios by determining the number of turns each gear in a pair will make based on the number of teeth each gear has. They use the engineering design process to design a set of gears for a bicycle considering incline of terrain</p> <p><b>STEM Project: Engineering to Prevent Extinction</b>          In this project, students explore the impact humans have on the environment as they research and identify ways in which engineers can help prevent the extinction of animal species.</p>	<p><b>Formative Assessments</b></p> <ul style="list-style-type: none"> <li>• Oral Questioning</li> <li>• Choral Response</li> <li>• Partners</li> <li>• Student Conference</li> <li>• Self-Assessment</li> <li>• Think-Pair-Share</li> <li>• Hand Signals</li> <li>• Peer Reflection</li> <li>• Graphic Organizers</li> <li>• Constructive Response</li> <li>• Teacher Observation</li> <li>• Exit Tickets</li> <li>• Class work</li> </ul> <p><b>Summative Assessments</b></p> <ul style="list-style-type: none"> <li>• Chapter Tests</li> <li>• Quizzes</li> <li>• Assessments</li> </ul>

	<ul style="list-style-type: none"> <li>● Projects</li> <li>● Alternative Assessments</li> <li>● Benchmark Tests</li> <li>● Standardized Tests</li> <li>● Modifications</li> </ul> <p><b>Benchmark Assessment</b></p> <ul style="list-style-type: none"> <li>● EnVision Benchmark Assessment</li> <li>● I-Ready Assessments</li> </ul> <p><b>Alternative Assessments</b></p> <ul style="list-style-type: none"> <li>● Untimed Fact Practice Assessment</li> <li>● Manipulative Driven Assessment</li> <li>● Modified/Teacher Created Chapter Tests</li> <li>● Modified/Teacher Created Mid-Chapter Quiz</li> <li>● Visual Representation of Skills Assess</li> <li>● Modified Classwork Assignments</li> <li>● Modified Benchmarks</li> <li>● EnVision Reteach Activities and Worksheets</li> <li>● Project Based Assessments with Scoring Rubric</li> </ul>
<b>Vocabulary</b>	
ratio terms, circumference, diameter, equivalent ratios, Pi, rate, unit rate, unit price, constant speed, conversion, factor, dimensional analysis, percent	
<b>Knowledge and Skills</b>	
<b>Content</b>	<b>Skills</b>
<ul style="list-style-type: none"> <li>● Understand ratio concepts and use ratio reasoning to solve problems</li> </ul>	<p>Students will be able to ...</p> <ul style="list-style-type: none"> <li>● Model ratios</li> <li>● Write ratios and rates</li> <li>● Use a multiplication table to find equivalent ratios</li> </ul>

<p>Students will know....</p> <ul style="list-style-type: none"> <li>• Use ratio language to describe a relationship between two quantities</li> </ul>	<ul style="list-style-type: none"> <li>• Solve problems involving ratios by using the strategy “Find a Pattern”</li> <li>• Use tables to solve problems involving equivalent ratios.</li> <li>• Use unit rates to make comparisons.</li> <li>• Solve problems using unit rates</li> <li>• Use a graph to represent equivalent ratio.</li> <li>• Use a model to show a percent as a rate per 100.</li> <li>• Write parents as fractions and decimals.</li> <li>• Write fractions as decimals and percent.</li> <li>• Find a percent of a quantity.</li> <li>• Solve percent problems by applying the strategy, “Use a model”.</li> <li>• Find the whole given a part and a percent.</li> <li>• Use ratio reasoning to convert from one unit of length to another.</li> <li>• Use ratio reasoning to convert from one unit of capacity to another.</li> <li>• Use ratio reasoning to convert from one unit of weight or mass to another.</li> <li>• Transform units to solve problems.</li> <li>• Solve problems involving distance, rate and time by applying the strategy, “Use a formula”.</li> </ul>
<b>Instructional Plan</b>	
<b>Suggested Activities</b>	<b>Resources</b>
<ol style="list-style-type: none"> <li>1. Observe relationships between number patterns.</li> <li>2. Use fraction strips to model equivalent fractions.</li> <li>3. Use ratios and rates to solve real world problems.</li> </ol>	enVision Textbook



<p><b>enVision Topic 5 “Pick A Project” Choice Activities -</b> Students will choose a project:</p> <ul style="list-style-type: none"> <li>● <i>Project 5A –Mosaics</i> : Students will make Build a mosaic using colored beads or stone</li> <li>● <i>Project 5B –Saving Money</i>: Students will use an empty jar to estimate money.</li> <li>● <i>Project 5C –Advertising</i>: Students will research real life advertisements and understand what the percentages mean and make their own</li> <li>● <i>Project 5D-Animal Sizes</i>: Students will research an animal of their choice, and compare weights/heights at various stages of life</li> </ul>	<p>enVision Pick a Project Descriptions and Materials (listed below):</p> <ul style="list-style-type: none"> <li>● Project 5A: colored beads</li> <li>● Project 5B: empty jar, coins</li> <li>● Project 5C: magazines, paper, markers,</li> <li>● Project 5D: construction paper, markers, internet</li> </ul>
<b>Literature</b>	
<p>Textbook: <i>EnVision</i>, Savvas Learning Company, 2021</p> <p><i>Math Curse</i> by Jon Scieszka  <i>Secrets, Lies, and Algebra</i> by Wendy Lichtman  <i>Fraction Action</i> by Loreen Leedy  <i>Jim and the Beanstalk</i> by Raymond Briggs</p>	
<b><u>Inclusivity/LGBTQ and Individuals with Disabilities Resources</u></b>	
<ul style="list-style-type: none"> <li>● Use word problems to incorporate inclusivity examples</li> <li>● Mathematicians of the African Diaspora - a website that highlights the accomplishments of African Americans in math <a href="http://www.math.buffalo.edu/mad/00.INDEXmad.html">http://www.math.buffalo.edu/mad/00.INDEXmad.html</a></li> <li>● Biographies of Women mathematicians - <a href="https://www.agnesscott.edu/lriddle/women/women.htm">https://www.agnesscott.edu/lriddle/women/women.htm</a></li> <li>● Incorporate studies/ examples in ADA such as wheelchair accessibility- <a href="https://www.ada.gov/restriping_parking/restriping2015.html">https://www.ada.gov/restriping_parking/restriping2015.html</a></li> <li>● Math article from GLSEN with examples on how to be inclusive with math <a href="https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities">https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities</a></li> <li>● Website for LGBTQ mathematicians and history <a href="http://lgbtmath.org/">http://lgbtmath.org/</a></li> <li>● Mathematically Gifted and Black- <a href="http://www.mathematicallygiftedandblack.com/">http://www.mathematicallygiftedandblack.com/</a></li> <li>● Latin and Hispanic Mathematicians -<a href="http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf">http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf</a></li> <li>● Black Female Mathematicians- <a href="http://mentalfloss.com/article/71576/black-female-mathematicians-who-sent-astronauts-space">http://mentalfloss.com/article/71576/black-female-mathematicians-who-sent-astronauts-space</a></li> </ul>	

- NewsELA article- Retooling computer science courses- [https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection\\_id=339](https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection_id=339)
- NewsELA article- Proud to be Different in STEM- [https://newsela.com/read/lib-proud-to-be-different-STEM/id/2001021838/?collection\\_id=2000000263](https://newsela.com/read/lib-proud-to-be-different-STEM/id/2001021838/?collection_id=2000000263)

**Websites**

Interactive arithmetic lessons  
 Online Resources  
 Online Videos  
 Interactive Games  
 Games, PowerPoint, Instructional Aides

enVision Math-Textbook Resources  
<https://www.savvas.com/index.cfm?locator=PS38Dv>

[Wizer.me](http://Wizer.me)  
[Edulastic](http://Edulastic)  
[Quizizz](http://Quizizz)  
[iReady](http://iReady)  
[Xtra Math](http://Xtra Math)  
[I Know It](http://I Know It)  
[Prodigy](http://Prodigy)  
[Khan Academy](http://Khan Academy)  
[Flocabulary](http://Flocabulary)

**Accommodations & Modifications**

**Basic Skills**

- 1:1
- Grab and Go centers
- Repeating Directions
- Small Group
- Manipulatives
- Interactive Notes
- Reteach/Enrichment Pages for each lesson (RTI)

**Economically Disadvantaged**

- 1:1
- Grab and Go centers
- Repeating Directions
- Small Group
- Manipulatives
- Interactive Notes

- Reteach/Enrichment Pages for each lesson (RTI)

**Gifted and Talented**

- Open ended/abstract questions to activate higher level thinking
- Alternative modes of communication
- Student developed extension activities
- Plan self-directed inquiry

**English Language Learners**

- Elicit Prior Knowledge
- Rephrase
- Understand Context
- Scaffold Language
- Restate
- Cooperative Grouping
- Peer Buddy

**Special Education/504 Plans**

- One on one instruction
- Adaptive devices
- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed
- Provide positive praise to increase motivation

**Students at Risk of Failure:**

- Ensure child has access to all appropriate academic resources both in school and at home
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences
- Provide tutoring if needed
- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials

- Offer encouragement and understanding
- Give choice to provide a sense of control

<b>Expressions and Equations</b>		<b>Topics 3 &amp;4, Duration: December-January 44 Days</b>
<b>Standards</b>		
<b>A</b>	Apply and extend previous understandings of arithmetic to algebraic expressions.	
<b>6.EE.A.1</b>	Write and evaluate numerical expressions involving whole-number exponents.	
<b>6.EE.A.2A</b>	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>6.EE.A.2B</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. <i>For example, describe the expression <math>2(8 + 7)</math> as a product of two factors; view <math>(8 + 7)</math> as both a single entity and a sum of two terms.</i>	
<b>6.EE.A.3</b>	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 $3y$ .	
<b>6.EE.A.4</b>	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>B.</b>	Reason about and solve one-variable equations and inequalities	
<b>6.EE.B.5</b>	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.	
<b>6.EE.B6</b>	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.	
<b>6.EE.B7</b>	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.	
<b>6.EE.B8</b>	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.
<b>C.</b>	<b>Represent and analyze quantitative relationships between dependent and independent variables.</b>
<b>6.EE.C9</b>	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.
	<b>Interdisciplinary Connections</b>
	<b>ELA Standards</b>
<b>SL.6.1.B</b>	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
	<b>21<sup>st</sup> Century Life and Careers</b>
	<p>Century Life and Career Skills: 21st century life and career skills enable students to make informed decisions that prepare them to engage as active citizens in a dynamic global society and to successfully meet the challenges and opportunities of the 21st century global workplace.  <a href="http://www.state.nj.us/education/aps/cccs/career/">http://www.state.nj.us/education/aps/cccs/career/</a></p> <p><b>9.1 Personal Financial Literacy</b>  This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.</p> <p><b>9.2 Career Awareness, Exploration, and Preparation</b>  This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.</p> <p><b>9.3 Career and Technical Education</b>  This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.</p>

	<b>Career Ready Practices</b>	
	<p>CRP1. Act as a responsible and contributing citizen and employee.</p> <p>CRP2. Apply appropriate academic and technical skills.</p> <p>CRP3. Attend to personal health and financial well-being.</p> <p>CRP4. Communicate clearly and effectively and with reason.</p> <p>CRP7. Employ valid and reliable research strategies.</p> <p>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p> <p>CRP10. Plan education and career paths aligned to personal goals.</p> <p>CRP11. Use technology to enhance productivity.</p> <p>CRP12. Work productively in teams while using cultural global competence.</p>	
	<b>Technology Standards</b>	
<b>8.1.8.A.1</b>	Demonstrate knowledge of a real world problem using digital tools.	
<b>Essential Understandings</b>		<b>Essential Questions</b>
<p><i>Students will understand that....</i></p> <ul style="list-style-type: none"> <li>● Some mathematical situations can be translated and represented using a variable in an algebraic expression.</li> <li>● The value of an algebraic expression can be found by replacing the variable(s) with given number(s) and doing the calculation that results.</li> <li>● There is an agreed upon order in which operations are carried out in a numerical expressions.</li> <li>● The Distributive Property of Multiplication over Addition lets you multiply a sum by multiplying each addend separately and then finding the sum of the products.</li> <li>● Some quantities have a mathematical relationship; the value of one quantity can be found if you know the value of the other quantity.</li> <li>● Patterns can sometimes be used to identify a relationship between two quantities.</li> <li>● Some problems can be solved by recording and organizing data in a table and by finding and using numerical patterns in the table.</li> </ul>		<ul style="list-style-type: none"> <li>● How do you write, interpret and use algebraic expressions?</li> <li>● How can you use equations and inequalities to represent situations and solve problems?</li> <li>● How can you show relationships between variables?</li> </ul>

<ul style="list-style-type: none"> <li>Equations can be transformed into equivalent equations and solved using properties of equality and inverse operations. A solution to an inequality is a value that makes the inequality true.</li> </ul>	
<b>Evidence of Student Learning</b>	
<b>Performance Tasks:</b> <i>Activities to provide evidence for student learning of content and cognitive skills.</i>	<b>Other Assessments</b>
<p><b>STEM PROJECT: Design a Bridge</b>          In this project, students will begin the process of designing a bridge in their community. They learn about the engineering design process as they consider the number, types, and weights of vehicles that will utilize the bridge.</p> <p>Part 2: Students design a bridge for their community. Students use the engineering design process to propose solutions.</p>	<p><b>Formative Assessments</b></p> <ul style="list-style-type: none"> <li>Oral Questioning</li> <li>Choral Response</li> <li>Partners</li> <li>Student Conference</li> <li>Self-Assessment</li> <li>Think-Pair-Share</li> <li>Hand Signals</li> <li>Peer Reflection</li> <li>Graphic Organizers</li> <li>Constructive Response</li> <li>Teacher Observation Exit Tickets</li> <li>Class work</li> </ul> <p><b>Summative Assessments</b></p> <ul style="list-style-type: none"> <li>Chapter Tests</li> <li>Quizzes</li> <li>Assessments</li> <li>Projects</li> <li>Alternative Assessments</li> <li>Benchmark Tests</li> <li>Standardized Tests</li> <li>Modifications</li> </ul> <p><b>Benchmark Assessment</b></p>



	<ul style="list-style-type: none"> <li>● EnVision Benchmark Assessment</li> </ul> <p><b>Alternative Assessments</b></p> <ul style="list-style-type: none"> <li>● Untimed Fact Practice Assessment</li> <li>● Manipulative Driven Assessment</li> <li>● Modified/Teacher Created Chapter Tests</li> <li>● Modified/Teacher Created Mid-Chapter Quiz</li> <li>● Visual Representation of Skills Assess</li> <li>● Modified Classwork Assignments</li> <li>● Modified Benchmarks</li> <li>● EnVision Reteach Activities and Worksheets</li> <li>● Project Based Assessments with Scoring Rubric</li> </ul>
<b>Mathematical Practice</b>	
MP. 2 Reason abstractly and quantitatively MP. 4 Model with mathematics MP. 7 Look for and make use of structure MP. 8 Look for and express regularity in repeated reasoning	
<b>Vocabulary</b>	
base, evaluate, exponent, power, composite number, factor tree, greatest common factor (GCF), least common multiple (LCM), prime factorization, prime number, numerical expression, algebraic expression, coefficient, term, variable, substitution, equivalent expressions, like terms, simplify, equation, solution of an equation, Addition Property of Equality, Subtraction Property of Equality, Multiplication Property of Equality, Division Property of Equality, inverse relationship, inequality, dependent variable, independent variable,	
<b>Knowledge and Skills</b>	
<b>Content</b>	<b>Skills</b>
<ul style="list-style-type: none"> <li>● Apply and extend previous understandings of arithmetic to algebraic expressions.</li> </ul>	Students will be able to ... <ul style="list-style-type: none"> <li>● Write and evaluate expressions using exponents.</li> <li>● Use the order of operations to evaluate expressions using exponents.</li> </ul>

<ul style="list-style-type: none"> <li>● Reason about and solve one-variable equations and inequalities.</li> <li>● Represent and analyze quantitative relationships between dependent and independent variables.</li> </ul>	<ul style="list-style-type: none"> <li>● Write algebraic expressions.</li> <li>● Identify and describe parts of expressions.</li> <li>● Evaluate algebraic expressions and formulas</li> <li>● Use algebraic expressions to solve problems.</li> <li>● Determine whether a number is a solution to an equation.</li> <li>● Translate between words and equations.</li> <li>● Use models to solve additional equations, and multiplication equations.</li> <li>● Use algebra to solve addition, subtraction, multiplication and division equations.</li> <li>● Determine whether a number is a solution of an inequality.</li> <li>● Write algebraic inequalities.</li> <li>● Represent solutions of algebraic inequalities on number line diagrams.</li> <li>● Write an equation to represent the relationship between and independent and dependent variable.</li> <li>● Translate between equations and tables.</li> <li>● Graph the relationship between two quantities.</li> <li>● Translate between equations and graphs</li> </ul>
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**Instructional Plan**

<b>Suggested Activities</b>	<b>Resources</b>
<ol style="list-style-type: none"> <li>1. Evaluate expressions with grouping symbols using the order of operations.</li> <li>2. Model multiplication using arrays.</li> <li>3. Identify parts of an algebraic expression before evaluating.</li> <li>4. Use models to solve simple one-step equations.</li> <li>5. Observe the relationship between two number patterns.</li> </ol>	enVision Textbook

6. Use a model to show a rule and observe alternative patterns.	
<p><b>enVision Topic 4 “Pick A Project” Choice Activities -</b>  Students will choose a project:</p> <ul style="list-style-type: none"> <li>● <i>Project 4A –Fitness Fun</i> : Students will analyze a fitness routine</li> <li>● <i>Project 4B –Books, Books, Books</i>: Students will modify a book to include real life mathematical problems</li> <li>● <i>Project 4C –Step it Up</i>: Students will design a modular stair case</li> <li>● <i>Project 4D-At a Snail’s Pace</i>: Students will design a race for a snail vs another animal</li> </ul>	<p>enVision Pick a Project Descriptions and Materials (listed below):</p> <ul style="list-style-type: none"> <li>● Project 4A: paper, graph paper, pencil</li> <li>● Project 4B: construction paper, markers, children books, pencils</li> <li>● Project 4C: arts and craft supplies</li> <li>● Project 4D: construction paper, markers, poster board, graph paper</li> </ul>
<b>Math Literature</b>	
Textbook: <i>EnVision</i> , Savvas Learning, 2021	
<p><i>Math Curse</i> by Jon Scieszka  <i>Secrets, Lies, and Algebra</i> by Wendy Lichtman  <i>Fraction Action</i> by Loreen Leedy  <i>Jim and the Beanstalk</i> by Raymond Briggs</p>	
<b><u>Inclusivity/LGBTQ and Individuals with Disabilities Resources</u></b>	
<ul style="list-style-type: none"> <li>● Use word problems to incorporate inclusivity examples</li> <li>● Mathematicians of the African Diaspora - a website that highlights the accomplishments of African Americans in math <a href="http://www.math.buffalo.edu/mad/00.INDEXmad.html">http://www.math.buffalo.edu/mad/00.INDEXmad.html</a></li> <li>● Biographies of Women mathematicians - <a href="https://www.agnesscott.edu/lriddle/women/women.htm">https://www.agnesscott.edu/lriddle/women/women.htm</a></li> <li>● Incorporate studies/ examples in ADA such as wheelchair accessibility- <a href="https://www.ada.gov/restriping_parking/restriping2015.html">https://www.ada.gov/restriping_parking/restriping2015.html</a></li> <li>● Math article from GLSEN with examples on how to be inclusive with math <a href="https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities">https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities</a></li> <li>● Website for LGBTQ mathematicians and history <a href="http://lgbtmath.org/">http://lgbtmath.org/</a></li> <li>● Mathematically Gifted and Black- <a href="http://www.mathematicallygiftedandblack.com/">http://www.mathematicallygiftedandblack.com/</a></li> <li>● Latin and Hispanic Mathematicians -<a href="http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf">http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf</a></li> </ul>	

- Black Female Mathematicians- <http://mentalfloss.com/article/71576/black-female-mathematicians-who-sent-astronauts-space>
- NewsELA article- Retooling computer science courses- [https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection\\_id=339](https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection_id=339)
- NewsELA article- Proud to be Different in STEM- [https://newsela.com/read/lib-proud-to-be-different-STEM/id/2001021838/?collection\\_id=2000000263](https://newsela.com/read/lib-proud-to-be-different-STEM/id/2001021838/?collection_id=2000000263)

**Websites**

Interactive arithmetic lessons  
 Online Resources  
 Online Videos  
 Interactive Games  
 Games, PowerPoint, Instructional Aides

- [Wizer.me](#)
- [Edulastic](#)
- [Quizizz](#)
- [iReady](#)
- [Xtra Math](#)
- [I Know It](#)
- [Prodigy](#)
- [Khan Academy](#)
- [Flocabulary](#)

enVision Math-Textbook Resources  
<https://www.savvas.com/index.cfm?locator=PS38Dv>

**Accommodations & Modifications**

**Basic Skills**

- 1:1
- Grab and Go centers
- Repeating Directions
- Small Group
- Manipulatives
- Interactive Notes
- Reteach/Enrichment Pages for each lesson (RTI)

**Economically Disadvantaged**

- 1:1
- Grab and Go centers
- Repeating Directions
- Small Group
- Manipulatives
- Interactive Notes
- Reteach/Enrichment Pages for each lesson (RTI)

<p><b>Gifted and Talented</b></p> <ul style="list-style-type: none"> <li>• Open ended/abstract questions to activate higher level thinking</li> <li>• Alternative modes of communication</li> <li>• Student developed extension activities</li> <li>• Plan self-directed inquiry</li> </ul>
<p><b>English Language Learners</b></p> <ul style="list-style-type: none"> <li>• Elicit Prior Knowledge</li> <li>• Rephrase</li> <li>• Understand Context</li> <li>• Scaffold Language</li> <li>• Restate</li> <li>• Cooperative Grouping</li> <li>• Peer Buddy</li> </ul>
<p><b>Special Education/504 Plans</b></p> <ul style="list-style-type: none"> <li>• One on one instruction</li> <li>• Adaptive devices</li> <li>• Provide differentiated instruction as needed</li> <li>• Follow all IEP modifications/504 plan</li> <li>• Have manipulatives and other math resources available for student use</li> <li>• Incorporate small group instruction</li> <li>• Utilize visual charts/cues</li> <li>• Facilitate successful experiences</li> <li>• Provide tutoring if needed</li> <li>• Provide positive praise to increase motivation</li> </ul>
<p><b>Students at Risk of Failure:</b></p> <ul style="list-style-type: none"> <li>• Ensure child has access to all appropriate academic resources both in school and at home</li> <li>• Provide structure and adhere to a consistent daily routine with clear and concise rules</li> <li>• Facilitate successful experiences</li> <li>• Provide tutoring if needed</li> <li>• Allow students to complete assignments in school</li> <li>• Do not penalize for late or missing assignments/materials</li> <li>• Offer encouragement and understanding</li> <li>• Give choice to provide a sense of control</li> </ul>

<b>Geometry and Statistics</b>	<b>Topic 7, Duration: May 21 Days</b>
<b>Standards</b>	
<b>A</b>	Solve real-world and mathematical problems involving area, surface area, and volume.
<b>6.G.A.1</b>	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.
<b>6.G.A.4</b>	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.
<b>6.G.A.2</b>	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 problem.
<b>6.G.A.3</b>	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.
<b>6.SP.A.1</b>	Measurements can be used to describe, compare, and make sense of real-world situations, including area, volume, and surface area. <ul style="list-style-type: none"> <li>• Geometric properties can be used to construct geometric figures.</li> <li>• Coordinate geometry facilitates the visualization of algebraic relationships.</li> </ul>
<b>6.SP.A.2</b>	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.
<b>6.SP.A.3</b>	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>6.SP.B.4</b>	Display numerical data in plots on a number line, including dot plots, histograms, and boxplots.
<b>6.SP.B.5a</b>	Reporting the number of observations.

<b>6.SP.B.5b</b>	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
<b>6.SP.B.5c</b>	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.
<b>6.SP.B.5d</b>	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.
	<b>Interdisciplinary Connections</b>
	<b>ELA Standards</b>
<b>SL.6.1.B</b>	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
	<p style="text-align: center;"><b>21<sup>st</sup> Century Life and Careers</b></p> <p>Century Life and Career Skills: 21st century life and career skills enable students to make informed decisions that prepare them to engage as active citizens in a dynamic global society and to successfully meet the challenges and opportunities of the 21st century global workplace.  <a href="http://www.state.nj.us/education/aps/cccs/career/">http://www.state.nj.us/education/aps/cccs/career/</a></p> <p><b>9.1 Personal Financial Literacy</b>  This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.</p> <p><b>9.2 Career Awareness, Exploration, and Preparation</b>  This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.</p> <p><b>9.3 Career and Technical Education</b>  This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.</p> <p style="text-align: center;"><b>Career Ready Practices</b></p> <p>CRP1. Act as a responsible and contributing citizen and employee.</p>

	<p>CRP2. Apply appropriate academic and technical skills.</p> <p>CRP3. Attend to personal health and financial well-being.</p> <p>CRP4. Communicate clearly and effectively and with reason.</p> <p>CRP7. Employ valid and reliable research strategies.</p> <p>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p> <p>CRP10. Plan education and career paths aligned to personal goals.</p> <p>CRP11. Use technology to enhance productivity.</p> <p>CRP12. Work productively in teams while using cultural global competence.</p>
	<b>Technology Standards</b>
<b>8.1.8.A.1</b>	Demonstrate knowledge of a real world problem using digital tools.
<b>Essential Understandings</b>	
<b>Essential Questions</b>	
<p><i>Students will understand that....</i></p> <ul style="list-style-type: none"> <li>● Measurements can be used to describe, compare, and make sense of real-world situations, including area, volume, and surface area.</li> <li>● Geometric properties can be used to construct geometric figures.</li> <li>● Coordinate geometry facilitates the visualization of algebraic relationships</li> <li>● Statistical questions anticipate variability in the data. These questions can be answered by collecting and analyzing data. The question to be answered determines the data that needs to be collected.</li> <li>● Each type of graph is most appropriate for certain kinds of data. A histogram uses bars to compare continuous numerical data grouped into intervals.</li> <li>● Box plots are useful for plotting data above a number line. Box plots show the spread for each quarter of the</li> </ul>	<ul style="list-style-type: none"> <li>● How can you use measurements to describe two dimensional figures?</li> <li>● How can you use measurements to describe three dimensional figures? <ul style="list-style-type: none"> <li>● How can you describe the shape of a data set using graphs, measures of center and measures of variability?</li> <li>● How can you display data and analyze measures of center?</li> </ul> </li> </ul>



<p>data.</p> <ul style="list-style-type: none"> <li>● A set of data collected to answer a statistical question has a</li> <li>● distribution, which can be described by its center, spread, and overall shape</li> </ul>	
<p><b>Evidence of Student Learning</b></p>	
<p><b>Performance Tasks:</b> <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <p><b>STEM Project: Pack It</b>          In this project, students explore how engineers design food packaging. They will use the engineering design process to develop packaging for food while considering constraints such as dimensions or materials.</p>	<p><b>Formative Assessments</b></p> <ul style="list-style-type: none"> <li>● Oral Questioning</li> <li>● Choral Response</li> <li>● Partners</li> <li>● Student Conference</li> <li>● Self-Assessment</li> <li>● Think-Pair-Share</li> <li>● Hand Signals</li> <li>● Peer Reflection</li> <li>● Graphic Organizers</li> <li>● Constructive Response</li> <li>● Teacher Observation</li> <li>● Exit Card Tickets</li> <li>● Class work</li> </ul> <p><b>Summative Assessments</b></p> <ul style="list-style-type: none"> <li>● Chapter Tests</li> <li>● Quizzes</li> <li>● Projects Alternative</li> <li>● Assessments</li> <li>● Standardized Tests</li> <li>● Modifications</li> </ul> <p><b>Benchmark Assessment</b></p> <ul style="list-style-type: none"> <li>● EnVision Benchmark Assessment</li> </ul>

	<p><b>Alternative Assessments</b></p> <ul style="list-style-type: none"> <li>● Untimed Fact Practice Assessment</li> <li>● Manipulative Driven Assessment</li> <li>● Modified/Teacher Created Chapter Tests</li> <li>● Modified/Teacher Created Mid-Chapter Quiz</li> <li>● Visual Representation of Skills Assess</li> <li>● Modified Classwork Assignments</li> <li>● Modified Benchmarks</li> <li>● EnVision Reteach Activities and Worksheets</li> <li>● Project Based Assessments with Scoring Rubric</li> </ul>
<b>Mathematical Practice</b>	
<p>MP.2 Reason abstractly and quantitatively  MP.4 Model with mathematics  MP 7. Look for and make use of structure  MP 8. Look for and express regularity in repeated reasoning</p>	
<b>Vocabulary</b>	
base, edge, face, net, polyhedron, vertex	
<b>Knowledge and Skills</b>	
<b>Content:</b>	<b>Skills:</b>
<ul style="list-style-type: none"> <li>● Solve real world and mathematical problems involving area, volume, and surface area.</li> <li>● Develop understanding of statistical variability</li> <li>● Summarize and describe distributions</li> </ul>	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> <li>● Find the area of parallelograms.</li> <li>● Investigate the relationship among the areas of triangles, rectangles and parallelograms.</li> </ul>

- Find the area of triangles.
- Investigate the relationship between the areas of trapezoids and parallelograms.
- Find the area of trapezoids.
- Find the area of regular polygons
- Recognize statistical questions.
- Describe a data set by stating what quantity was measured and how it was measured.
  - Use frequency tables and dot plots to organize data.
  - Display data and histograms.
  - Understand the mean as a fair share and as a balance point.
  - Summarize data by using mean, median and mode.
  - Determine the effect of outliers on measures of center.
  - Solve problems involving data by using the strategy, "Draw a diagram."
  - Describe overall pattern in data including, clusters, peak, gaps and symmetry.
  - Display data and box plots.
  - Understand mean, absolute deviation as a measure of variability from the mean.
  - Summarize a data set by using range, interquartile range, and mean absolute deviation.
  - Choose appropriate measures of center

	<p>and variability to describe data and justify the choice.</p> <ul style="list-style-type: none"> <li>● Recognize what measures of center and variability indicate about a data set.</li> </ul>
<b>Instructional Plan</b>	
<b>Suggested Activities</b>	<b>Resources</b>
<ol style="list-style-type: none"> <li>1. Find the area of a rectangle with fractional side lengths.</li> <li>2. Find the perimeter and area of rectangles and squares.</li> <li>3. Use small unit cubes to find the volume of rectangular prisms.</li> <li>4. Explore nets by use of different shaped prisms and pyramids.</li> <li>5. Calculate percent based on data.</li> <li>6. Create and interpret bar graphs.</li> <li>7. Use a dot plot to represent and interpret data.</li> <li>8. Create a dot plot from measurements and perform simple operations on the data</li> </ol>	<p>enVision Textbook, manipulatives</p>
<p><b>enVision Topic 7 “Pick A Project” Choice Activities -</b>  Students will choose a project:</p> <ul style="list-style-type: none"> <li>● <i>Project 7A –Cubes in Architecture</i> : Students will compare cube shaped buildings</li> <li>● <i>Project 7B –Roll a Number Cube</i>: Students will draw nets of number cubes,</li> <li>● <i>Project 7C –Wrap it Up</i>: Students will calculate the amount of gift wrap in order to wrap a gift</li> <li>● <i>Project 7D-Rap Battle</i>: Students will work with a partner to write The Battle of the Polygon</li> </ul>	<p>enVision Pick a Project Descriptions and Materials (listed below):</p> <ul style="list-style-type: none"> <li>● Project 7A: internet, paper, pencil</li> <li>● Project 7B: number cubes, pencil, paper</li> <li>● Project 7C: boxes, wrapping paper, ruler, pencil, paper</li> <li>● Project 7D: paper, pencil, shapes</li> </ul>

## Math Literature

Textbook: *EnVision*, Savvas Learning Company, 2021

*Math Curse* by Jon Scieszka

*Secrets, Lies, and Algebra* by Wendy Lichtman

*Fraction Action* by Loreen Leedy

*Jim and the Beanstalk* by Raymond Briggs

### Inclusivity/LGBTQ and Individuals with Disabilities Resources

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- Incorporate studies/ examples in ADA such as wheelchair accessibility- [https://www.ada.gov/restriping\\_parking/restriping2015.html](https://www.ada.gov/restriping_parking/restriping2015.html)
- Math article from GLSEN with examples on how to be inclusive with math <https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities>
- Website for LGBTQ mathematicians and history <http://lgbtmath.org/>
- Mathematically Gifted and Black- <http://www.mathematicallygiftedandblack.com/>
- Latin and Hispanic Mathematicians - <http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf>
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- NewsELA article- Proud to be Different in STEM- [https://newsela.com/read/lib-proud-to-be-different-STEM/id/2001021838/?collection\\_id=2000000263](https://newsela.com/read/lib-proud-to-be-different-STEM/id/2001021838/?collection_id=2000000263)

### Websites

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Online Resources

Online Videos

Interactive Games

Games, PowerPoint, Instructional Aides

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<p><b>Accommodations &amp; Modifications</b></p>	
<p><b>Basic Skills</b></p> <ul style="list-style-type: none"> <li>● 1:1</li> <li>● Grab and Go centers</li> <li>● Repeating Directions</li> <li>● Small Group</li> <li>● Manipulatives</li> <li>● Interactive Notes</li> <li>● Reteach/Enrichment Pages for each lesson (RTI)</li> </ul>	
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<p><b>English Language Learners</b></p> <ul style="list-style-type: none"> <li>● Elicit Prior Knowledge</li> <li>● Rephrase</li> <li>● Understand Context</li> <li>● Scaffold Language</li> </ul>	

- Restate
- Cooperative Grouping
- Peer Buddy

**Special Education/504 Plans**

- One on one instruction
- Adaptive devices
- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
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**Students at Risk of Failure:**

- Ensure child has access to all appropriate academic resources both in school and at home
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- Facilitate successful experiences
- Provide tutoring if needed
- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials
- Offer encouragement and understanding
- Give choice to provide a sense of control

<b>Statistics and Probability</b>		<b>Topics 8 Duration: End of May/June 19 days</b>
<b>Standards</b>		
<b>A.</b>	<b>Develop understanding of statistical variability</b>	
<b>6.SP.A.1</b>	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.	
<b>6.SP.A.2</b>	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.	
<b>6.SP.A.3</b>	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>B.</b>	<b>Summarize and describe distributions</b>	
<b>6.SP.B.4</b>	Display numerical data in plots on a number line, including dot plots, histograms, and box plots	
<b>6.SP.B.5</b>	Summarize numerical data sets in relation to their context, such as by:	
<b>6.SP.B.5.A</b>	Reporting the number of observations.	
<b>6.SP.B.5.B</b>	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	
<b>6.SP.B.5.C</b>	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.	
<b>6.SP.B.5.D</b>	Relating the choice of measures of center and variability to the	
<b>Interdisciplinary Connections</b>		
<b>ELA Standards</b>		
<b>SL.6.1.B</b>	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as	



	needed.
	<p style="text-align: center;"><b>21<sup>st</sup> Century Life and Careers</b></p> <p>Century Life and Career Skills: 21st century life and career skills enable students to make informed decisions that prepare them to engage as active citizens in a dynamic global society and to successfully meet the challenges and opportunities of the 21st century global workplace.  <a href="http://www.state.nj.us/education/aps/cccs/career/">http://www.state.nj.us/education/aps/cccs/career/</a></p> <p><b>9.1 Personal Financial Literacy</b>  This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.</p> <p><b>9.2 Career Awareness, Exploration, and Preparation</b>  This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.</p> <p><b>9.3 Career and Technical Education</b>  This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.</p> <p style="text-align: center;"><b>Career Ready Practices</b></p> <p>CRP1. Act as a responsible and contributing citizen and employee.  CRP2. Apply appropriate academic and technical skills.  CRP3. Attend to personal health and financial well-being.  CRP4. Communicate clearly and effectively and with reason.  CRP7. Employ valid and reliable research strategies.  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.  CRP10. Plan education and career paths aligned to personal goals.  CRP11. Use technology to enhance productivity.  CRP12. Work productively in teams while using cultural global competence.</p>
	<b>Technology Standards</b>

<b>8.1.8.A.1</b>	Demonstrate knowledge of a real world problem using digital tools.	
<b>Essential Understandings</b>		<b>Essential Questions</b>
<p><i>Students will understand that.....</i></p> <ul style="list-style-type: none"> <li>● A statistical question anticipates variability in responses and can be answered by collecting and analyzing data.</li> <li>● The mean, median, and mode are measures that can be used to describe the center of a dataset. The range is a measure that can be used to describe the variability of a data set.</li> <li>● A box plot is a good choice for displaying a distribution of numerical data values on a number line.</li> <li>● Data values can be organized into equal intervals and displayed in a frequency table or histogram.</li> <li>● Measures of variability, such as the mean absolute deviation (MAD) and interquartile range (IQR), describe the spread and clustering of data in a set.</li> <li>● A set of numerical data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape.</li> <li>● Many real-world problem situations can be represented with a mathematical model, but that model may not represent a real-world situation exactly.</li> </ul>		<ul style="list-style-type: none"> <li>● How can data be described by a single number? How can tables and graphs be used to represent data and answer questions?</li> </ul>

## Evidence of Student Learning

**Performance Tasks:** Activities to provide evidence for student learning of content and cognitive skills.

### Other Assessments

**STEM Project: Shake It Up**

In this project, students explore earthquakes and how engineers design bridges, buildings, dams, roadways, and other structures that can withstand earthquakes.

**Formative Assessments**

- Oral Questioning
- Choral Response
- Partners
- Student Conference
- Self-Assessment
- Think-Pair-Share
- Hand Signals
- Peer Reflection
- Graphic Organizers
- Constructive Response
- Teacher Observation
- Exit Tickets
- Class work

**Summative Assessments**

- Chapter Tests
- Quizzes
- Assessments
- Projects
- Alternative Assessments
- Benchmark Tests
- Standardized Tests
- Modifications

**Benchmark Assessment**

- EnVision Benchmark Assessment
- I-Ready Assessments

	<p><b>Alternative Assessments</b></p> <ul style="list-style-type: none"> <li>● Untimed Fact Practice Assessment</li> <li>● Manipulative Driven Assessment</li> <li>● Modified/Teacher Created Chapter Tests</li> <li>● Modified/Teacher Created Mid-Chapter Quiz</li> <li>● Visual Representation of Skills Assess</li> <li>● Modified Classwork Assignments</li> <li>● Modified Benchmarks</li> <li>● EnVision Reteach Activities and Worksheets</li> <li>● Project Based Assessments with Scoring Rubric</li> </ul>
<b>Mathematical Practice</b>	
<p>MP 2: Reason abstractly and quantitatively  MP 3: Construct viable arguments and critique the reasoning of others.  MP 4: Model with mathematics.  MP 7: Look for and make use of structure  MP 8: Look for and express regularity in repeated reasoning</p>	
<b>Vocabulary</b>	
<p>statistical question, mean, median, mode, range, box plot, quartiles, frequency table, histogram, absolute deviation, mean absolute deviation (MAD), interquartile range (IQR), outlier, data distribution</p>	
<b>Knowledge and Skills</b>	
<b>Content</b>	<b>Skills</b>
<ul style="list-style-type: none"> <li>● Understand mean, median, and mode are used to represent data.</li> <li>● Measures of variation are used to describe distribution or spread of data.</li> <li>● Learn that appropriate measures of tendency need to be used.</li> </ul>	<ul style="list-style-type: none"> <li>● Analyze the relationship between the dependent and independent variables and relate the equation to a given graph and to its table of values.</li> <li>● Distinguish questions that are statistical (anticipate variability in data) from those that are not.</li> <li>● Display numerical data in plots on the number line (including dot plots, histograms, and box plots) and summarize in relation to their context.</li> </ul>

	<ul style="list-style-type: none"> <li>Summarize numerical data in relation to their context by identifying the number of observations and describing how the data was measured.</li> <li>Calculate, and interpret measures of center (mean and median) and variability (interquartile range and mean absolute deviation); report measures of center and variability appropriate to the shape of the distribution and context.</li> </ul>
<b>Instructional Plan</b>	
<b>Suggested Activities</b>	<b>Resources</b>
<ul style="list-style-type: none"> <li>Identifying Statistical Questions</li> </ul>	<a href="https://www.illustrativemathematics.org/content-standards/6/SP/A/1/tasks/703">https://www.illustrativemathematics.org/content-standards/6/SP/A/1/tasks/703</a>
<ul style="list-style-type: none"> <li>Is It Center or Is It Variability?</li> </ul>	<a href="https://www.illustrativemathematics.org/content-standards/6/SP/A/3/tasks/2097">https://www.illustrativemathematics.org/content-standards/6/SP/A/3/tasks/2097</a>
<p><b>enVision Topic 8 “Pick A Project” Choice Activities -</b> Students will choose a project:</p> <ul style="list-style-type: none"> <li><i>Project 8A –Record a video blog</i> : Students will explore video blogs, and track data and display data</li> <li><i>Project 8B –What’s for Breakfast</i>: Students will investigate cereals and compare at least two kinds. Share data found</li> <li><i>Project 8C –Time It</i>: Students will analyze a time trial. They will collect data and use plot box</li> <li><i>Project 8D- Student Leadership</i>: Students will survey school on something they want changed. Collect data and compare to other schools. Write a proposal with evidence .</li> </ul>	<p>enVision Pick a Project Descriptions and Materials (listed below):</p> <ul style="list-style-type: none"> <li>Project 8A: internet access, video camera(optional)</li> <li>Project 8B: two boxes of cereal, poster board, markers, glue</li> <li>Project 8C: stopwatch or other timer, boxes, string, glue, markers</li> <li>Project 8D: no special materials needed</li> </ul>

## Math Literature

Textbook: *EnVision*, Savvas Learning Company LLC, 2021

*Math Course* by Jon Scieszka

*Secrets, Lies, and Algebra* by Wendy Lichtman

*Fraction Action* by Loreen Leedy

*Jim and the Beanstalk* by Raymond Briggs

### Inclusivity/LGBTQ and Individuals with Disabilities Resources

- Use word problems to incorporate inclusivity examples
- Mathematicians of the African Diaspora - a website that highlights the accomplishments of African Americans in math <http://www.math.buffalo.edu/mad/00.INDEXmad.html>
- Biographies of Women mathematicians - <https://www.agnesscott.edu/lriddle/women/women.htm>
- Incorporate studies/ examples in ADA such as wheelchair accessibility- [https://www.ada.gov/restriping\\_parking/restriping2015.html](https://www.ada.gov/restriping_parking/restriping2015.html)
- Math article from GLSEN with examples on how to be inclusive with math <https://www.glsen.org/blog/how-do-we-make-math-class-more-inclusive-trans-and-non-binary-identities>
- Website for LGBTQ mathematicians and history <http://lgbtmath.org/>
- Mathematically Gifted and Black- <http://www.mathematicallygiftedandblack.com/>
- Latin and Hispanic Mathematicians- <http://www.ams.org/publications/journals/notices/201609/rnoti-p1019.pdf>
- Black Female Mathematicians- <http://mentalfloss.com/article/71576/black-female-mathematicians-who-sent-astronauts-space>
- NewsELA article- Retooling computer science courses- [https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection\\_id=339](https://newsela.com/read/benchmark-7-computer-science-ethics/id/42067/?collection_id=339)
- NewsELA article- Proud to be Different in STEM- [https://newsela.com/read/lib-proud-to-be-different-stem/id/2001021838/?collection\\_id=2000000263](https://newsela.com/read/lib-proud-to-be-different-stem/id/2001021838/?collection_id=2000000263)

### WEBSITES

Interactive arithmetic lessons

Online Resources

Online Videos

Interactive Games

Games, PowerPoint, Instructional Aides

enVision Math-Textbook Resources

[Wizer.me](#)

[Edulastic](#)

[Quizizz](#)

[iReady](#)

[Xtra Math](#)

[I Know It](#)

[Prodigy](#)

<a href="https://www.savvas.com/index.cfm?locator=PS38Dv">https://www.savvas.com/index.cfm?locator=PS38Dv</a>	<a href="#">Khan Academy</a> <a href="#">Flocabulary</a>
<b>Accommodations &amp; Modifications</b>	
<b>Basic Skills</b> <ul style="list-style-type: none"> <li>● 1:1</li> <li>● Grab and Go centers</li> <li>● Repeating Directions</li> <li>● Small Group</li> <li>● Manipulatives</li> <li>● Interactive Notes</li> <li>● Reteach/Enrichment Pages for each lesson (RTI)</li> </ul>	
<b>Economically Disadvantaged</b> <ul style="list-style-type: none"> <li>● 1:1</li> <li>● Grab and Go centers</li> <li>● Repeating Directions</li> <li>● Small Group</li> <li>● Manipulatives</li> <li>● Interactive Notes</li> <li>● Reteach/Enrichment Pages for each lesson (RTI)</li> </ul>	
<b>Gifted and Talented</b> <ul style="list-style-type: none"> <li>● Open ended/abstract questions to activate higher level thinking</li> <li>● Alternative modes of communication</li> <li>● Student developed extension activities</li> <li>● Plan self-directed inquiry</li> </ul>	
<b>English Language Learners</b> <ul style="list-style-type: none"> <li>● Elicit Prior Knowledge</li> <li>● Rephrase</li> <li>● Understand Context</li> <li>● Scaffold Language</li> <li>● Restate</li> <li>● Cooperative Grouping</li> </ul>	

- Peer Buddy

**Special Education/504 Plans**

- One on one instruction
- Adaptive devices
- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed
- Provide positive praise to increase motivation

**Students at Risk of Failure:**

- Ensure child has access to all appropriate academic resources both in school and at home
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences
- Provide tutoring if needed
- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials
- Offer encouragement and understanding
- Give choice to provide a sense of control