Tab 1

VERNON TOWNSHIP
SCHOOL DISTRICT

MATH GRADE 7

Curriculum Map

Adapted from:
Understanding By Design

Reviewed by:
Vincent Gagliostro - Director of Curriculum & Instruction

Adopted:
August 2025

Members of Vernon Board of Education:
Jennifer Pellet - President
Charles Cimaglia - Vice President
Carolyn Ross
Carl Contino
Brian Fisher
John Kraus
Joseph Sweeney
Stephanie Vecharello
Raymond Zimmerman

Superintendent of Schools:
Eveny de Mendez

Vernon School District
PO Box 99
625 Route 517
Vernon, NJ 07462
www.vtsd.com/

Course Description

Math Grade 7

Based upon the following list of proficiencies, each student must demonstrate a minimum competency level of 65%. Competencies will be measured by way of an evaluation program consisting of teacher observations of student performance, tests, quizzes, classwork, homework, projects, and class participation, as well as class attendance in accordance with the high school's attendance policy.

Various Levels of Text: Supplemental text and audio visual materials are provided for above grade level and below grade level for students who need them.

AI tools and Text to Speech tools may be used to adapt the lexile level of grade level materials.

New Jersey Learning Standards covered throughout the course

In conjunction with the New Jersey Student Learning Standards, students enrolled in the Math Grade 7 courses will demonstrate the ability to:

- 7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.
- 7.RP.2 Recognize and represent proportional relationships between quantities.
- 7.RP.2a Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
- 7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- 7.RP.2c Represent proportional relationships by equations.
- 7.RP.2d Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.
- 7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.
- 7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
- 7.NS.1a Describe situations in which opposite quantities combine to make 0.

- 7.NS.1b Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
- 7.NS.1c Understand subtraction of rational numbers as adding the additive inverse, p minus $-q = p +$ (minus $-q$). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
- 7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.
- 7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
- 7.NS.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (minus$-$ 1)(minus $-$ 1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
- 7.NS.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with nonzero divisor) is a rational number. If p and q are integers, then $-(\frac{p}{q}) - \frac{(-P)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real world contexts.
- 7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.
- 7.NS.2d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
- 7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.
- 7.EE.A Use properties of operations to generate equivalent expressions.
- 7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- 7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
- 7.EE.B Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
- 7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
- 7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

- 7.EE.4a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
- 7.EE.4b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
- 7.G.A Draw, construct, and describe geometrical figures and describe the relationships between them.
- 7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- 7.G.A.2 Draw (with technology, with ruler and protractor, as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
- 7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
- 7.G.B Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
- 7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
- 7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
- 7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
- 7.SP.A Use random sampling to draw inferences about a population.
- 7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
- 7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

- 7.SP.B Draw informal comparative inferences about two populations
- 7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
- 7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
- 7.SP.C Investigate chance processes and develop, use, and evaluate probability models.
- 7.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
- 7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
- 7.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observe frequencies; if the agreement is not good, explain possible sources of the discrepancy.
- 7.SP.C.7.a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
- 7.SP.C.7.b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
- 7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
- 7.SP.C.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
- 7.SP.C.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.
- 7.SP.C.8c Design and use a simulation to generate frequencies for compound events.

Grading Criteria
• Participation - 10% • Tests - 45% • Quizzes -35% • Homework/Projects - 10%

Course Resources
Core Text: • IM v.360 Grade 7: Powered by Kiddom **Technologies** • Personal computer with Internet access, a web browser and word processing, presentation software for both teacher and student use • Software and web-based presentation resources • Wayground (formally Quizizz) • iReady Learning Path • Kiddom Website • 99Math **Supplemental Materials** • Released NJSLA questions

Scope and Sequence- Topical Outline		
Unit	Title	Time
1	Scale Drawings	4.5 weeks
2	Introducing Proportional Relationships	3.5 weeks
3	Measuring Circles	3 weeks

4	Proportional Relationships & Percentages	4 weeks
5	Rational Number Arithmetic	4.5 weeks
6	Expressions, Equations, & Inequalities	5.5 weeks
7	Angles, Triangles & Prisms	4 weeks
8	Probability & Sampling	4.5 weeks
9	Putting It All Together	2.5 weeks

The timeline is only an approximation. The inclusion of a classroom project and assessments in any one of the above units would extend the time allotted.

Subject Area: MATH **Grade Level: 7**	
Unit	**1 Scale Drawings**
Timeframe	4.5 Weeks
Established Goals	• Students study scaled copies of plane figures and scale drawings of real-world objects. • Students learn that all lengths in a scaled copy are the result of multiplying the original lengths by a scale factor. • The angle measures in a scaled copy are the same as in the original figure.
NJSLS	• 7.G.A.1- Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. • 7.G.B.6 - Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. • MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision. • MP.7 Look for and make use of structure.

	• MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How do you learn to identify and calculate scale factors? • How do you create scaled copies, and use scale drawings to determine actual lengths and areas?
Content Knowledge	*Students will learn to:* Represent • A scaled copy for a given scale factor. • Distances using different scales. • Relevant features of a classroom with a scale drawing. Generalize • About corresponding distances and angles in scaled copies. • About scale factors greater than, less than, and equal to 1. • About scale factors and area. • About scale factors with and without units. Explain • How to use scale drawings to find actual distances. • How to use scale drawings to find actual distances, speed, and elapsed time. • How to use scale drawings to find actual areas.
Skills	*Students will be able to:* • Calculate scale factors • Create scaled copies • Use scale drawings • Choose appropriate scales.
Performance Tasks	• Floor Plan • Map Distance • Rescaling Washington Park • Scaling Angles and Polygons • Quizzes • Chapter Assessments including released NJSLA questions • Unit 1 Resource Folder (add a link to the google drive folder with resources - limited share access to active teachers for the grade level subject only)

Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Check Your Readiness – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Gamification – A quick daily online game to collect data on students' level of content mastery ● Guided Practice – Teacher-monitored activities where students practice new skills with support ● Checkpoints– A short problem or question to assess each learning objective ● Cool Down – A short problem or question at the end of a lesson to assess learning ● Class Discussions – Encouraging students to explain their thinking and reasoning aloud ● Quizzes - (by topic) Scale Drawings, Scale Factor **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of the Unit Assessment – Illustrative Mathematics Unit 1 ● Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Project-Based Learning (PBL) – Real-world applications, such as designing a theme park with scaled measurements. ● Peer Teaching - Assess understanding as students explain a concept to a classmate ● Teacher Questioning/Observation
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 7 student/teacher access to the digital platform ● iReady My Path for students ● BenQ Board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials)

	• Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Interdisciplinary Connections	Project Title: Scaling the World Overview: Students will explore scale factor by applying it to real-world scenarios such as map scaling, architectural blueprints, models in science, and enlarging/reducing images in art. They will use scale factor to create a scaled model, blueprint, or map that demonstrates proportionality in different fields. Driving Question: "How does scale factor help us create, understand, and design in the real world?" **Cross-Curricular Connections:** **Art** **NJSLS-VPA 1.1.6.Cr2a (Creating Art)** • Explore and use a variety of geometric shapes, patterns, and forms to create artwork. **2023 NJSLS-ELA: Grade 7** **W.IW.7.2.** Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **SL.PI.7.4.** Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
Learning Activities	• Scaled Copies • Scale Drawings

Subject Area: Math Grade Level: 7	
Unit	**2 Introducing Proportional Relationships**
Timeframe	3.5 Weeks
Established Goals	• Students will develop the idea of a proportional relationship. • Students will work with proportional relationships that are represented in tables, as equations, and on graphs.
NJSLS	• 7.G.A.1- Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. • 7.RP.A - Analyze proportional relationships and use them to solve real-world and mathematical problems. • 7.RP.A.1 - Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour. • 7.RP.A.2 - Recognize and represent proportional relationships between quantities. • 7.RP.A.2.a - Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table, or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. • 7.RP.A.2.b - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. • 7.RP.A.2.c - Represent proportional relationships by equations. • 7.RP.A.2.d - Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate. • MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision.

	• MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How do you represent proportional relationships as tables, equations, and graphs? • How do you use the constant of proportionality to determine if relationships are proportional? • How do you use proportional relationships to find constant speed, unit pricing, and measurement conversions?
Content Knowledge	*Students will learn to:* Compare • Drink mixtures and figures. • Approaches to solving problems involving proportional relationships. • Proportional relationships with nonproportional relationships. • Tables, descriptions, and graphs representing the same situations. • Graphs of proportional relationships. Interpret • Representations showing equivalent ratios. • Tables showing equivalent ratios. • Situations involving proportional relationships. • How a graph represents features of a situation. Generalize • About proportional relationships. • About equations that represent proportional relationships. • About how a constant of proportionality is represented by graphs and tables.
Skills	*Students will be able to:* • Identifying the constant of proportionality from tables and equations. • Write equations to represent proportional relationships. • Determining if relationships are proportional by examining tables, equations, and • real-world situations. • Interpret graphs of proportional relationships, including understanding the significance of the point (1, k).
Performance Tasks	• Track Practice • Cooking with a Whole Cup • Molly's Run • Cider versus Juice

	• Quizzes • Chapter Assessments including released NJSLA questions
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Check Your Readiness – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Gamification – A quick daily online game to collect data on students' level of content mastery • Guided Practice – Teacher-monitored activities where students practice new skills with support • Checkpoints– A short problem or question to assess each learning objective • Cool Down – A short problem or question at the end of a lesson to assess learning • Class Discussions – Encouraging students to explain their thinking and reasoning aloud • Quizzes - (by topic) - Equivalent Ratios, Constant of Proportionality, Proportional and Nonproportional Relationships, Graphing Proportional Relationships **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) • End of the Unit Assessment – Illustrative Mathematics Unit 2 • Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. • Project-Based Learning (PBL) – Real-world applications • Peer Teaching - Assess understanding as students explain a concept to a classmate • Teacher Questioning/Observation
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text • **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 7 student/teacher access to the digital platform • iReady My Path for students • BenQ Board • Schoology learning management system • Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice

	• Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Interdisciplinary Connections	Project Title: Proportionality in the Real World Overview: Students will explore how direct proportion is applied in real-world scenarios across various disciplines. They will create a presentation, report, or interactive project demonstrating proportional relationships in different fields. Driving Question: "Where do we see direct proportion in everyday life, and why is it important?" **Cross-Curricular Connections:** **New Jersey Science Learning Standards:** **MS-PS3-4:** Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. **MS-PS1-2:** Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. **MS-ESS3-3:** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
Learning Activities	• Representing Proportional Relationships with Tables • Representing Proportional Relationships with Equations • Comparing Proportional and Nonproportional Relationships • Representing Proportional Relationships with Graphs

Subject Area: Math Grade Level: 7	
Unit	**3 Measuring Circles**
Timeframe	3 Weeks
Established Goals	• Identifythe relationships between radius, diameter, circumference, and area of circles and use these relationships to solve problems. • Find the volume of spheres, cylinders, and cones.
NJSLS	• 7.RP.A.2 - Recognize and represent proportional relationships between quantities. • 7.RP.A.2.a - Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table, or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. • 7.RP.A.2.c - Represent proportional relationships by equations. • 7.RP.A.3 - Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. • 7.G.A - Draw, construct, and describe geometrical figures and describe the relationships between them. • 7.G.A.1 - Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. • 7.G.A.2 - Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. • 7.G.B - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. • 7.G.B.4 - Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. • 7.G.B.6 - Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. • 7.EE.B.3 - Solve multi-step real-life and mathematical problems posed with positive and negative

	rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. ● MP.1 Make sense of problems and persevere in solving them. ● MP.2 Reason abstractly and quantitatively. ● MP.3 Construct viable arguments & critique the reasoning of others. ● MP.4 Model with mathematics. ● MP.5 Use appropriate tools strategically. ● MP.6 Attend to precision. ● MP.7 Look for and make use of structure. ● MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	● How do you describe the relationships between a circle's radius, diameter, circumference, and area? ● How will you use the formulas to calculate circumference and area, and use these to solve problems with circles? ● How can you differentiate between situations requiring circumference and those needing area calculations?
Content Knowledge	*Students will learn to:* Generalize ● About categories for sorting circles. ● About the relationship between circumference and diameter. ● About circumference and rotation. ● About the relationship between the radius and the area of a circle. Justify ● Reasoning about circumference and perimeter. ● Estimates for the areas of circles. ● Reasoning about areas of curved figures. ● Reasoning about the cost of stained glass windows.

	Interpret • Situations involving circles. • Floor plans and maps.. • Situations involving circumference and area.
Skills	*Students will be able to:* • Accurately measuring lengths and diameters of circles. • Using formulas to calculate a circle's circumference and area. • Applying understanding of circles to solve real-world problems. • Use approximations of π to estimate circumference and area. • Differentiate between problems that require circumference calculations and those that need area calculations.
Performance Tasks	• Cube Ninjas! • Drinking the Lake • Approximating the Area of a Circle • Circumference of a Circle • Designs • Eight Circles • Measuring the Area of a Circle • Stained Glass • Wedges of a Circle • Sand Under the Swing Set • Quizzes • Chapter Assessments including released NJSLA questions
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Check Your Readiness – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Gamification – A quick daily online game to collect data on students' level of content mastery • Guided Practice – Teacher-monitored activities where students practice new skills with support • Checkpoints– A short problem or question to assess each learning objective • Cool Down – A short problem or question at the end of a lesson to assess learning • Class Discussions – Encouraging students to explain their thinking and reasoning aloud • Quizzes - (by topic) Parts of a Circles, Area and Circumference of a Circle

	Summative Assessment (Evaluates mastery of skills at the end of a unit or grading period) ● End of the Unit Assessment – Illustrative Mathematics Unit 3 ● Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Project-Based Learning (PBL) – Real-world applications ● Peer Teaching - Assess understanding as students explain a concept to a classmate ● Teacher Questioning/Observation
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 7 student/teacher access to the digital platform ● iReady My Path for students ● BenQ Board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) ● Project-Based Learning Activities (created by the teacher) ● Spiral review activities (created by the teacher)
Interdisciplinary Connections	Project Title: Track the World - Designing a Running Track Overview: Students will apply their understanding of the circumference of a circle to design a running track. The track can be a size and shape of choice. The shape of running tracks and how they contribute to efficiency will be a whole-class point of focus before the project as students will be expected to persuade their classmates on why their track is best. **Cross-Curricular Connections:**

	New Jersey Science Learning Standards: **MS-PS2-2:** Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. **MS-LS1-3:** Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. **Language Arts (2023 NJSLS-ELA: Grade 7)** ● **SL.PE.7.1.** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. ● **SL.ES.7.3.** Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence. ● **SL.PI.7.4.** Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
Learning Activities	● Circumference of a Circle ● Area of a Circle

Subject Area: Math **Grade Level: 7**	
Unit	**4 Proportional Relationships & Percentages**
Timeframe	4 Weeks

Established Goals	• Solve multi-step problems and work with situations that involve fractional amounts. • Determine the unit rate for a situation by computing the quotient of two fractions. • Make sense of situations where an increase or decrease is expressed as a percentage of the initial amount.
NJSLS	• 7.EE.A.2 - Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05." • 7.NS.A.2.d - Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats. • 7.RP.A.1 - Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour. • 7.RP.A.2 - Recognize and represent proportional relationships between quantities. • 7.RP.A.3 - Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. • MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How can you find the rate for one unit when dealing with fractional amounts? • How can you calculate changes as percentages and work with both increases and decreases? • How do you apply percentages to real-life scenarios like taxes, tips, discounts, and interest? • What is the difference between a correct and incorrect measurement as a percentage?
Content Knowledge	*Students will learn to:* Interpret • Situations involving constant speed.

	• Concrete problems involving percent increase and decrease. • Problems involving sales tax and tip. • Concrete situations involving percent error. Explain • How to solve concrete and abstract problems involving an amount plus (or minus) a fraction of that amount. • How to solve percent change problems. • Strategies for solving percent problems with fractional percentages. • How to measure lengths and interpret measurement error. • Strategies for solving percent error problems. Represent • Situations involving percent increase and decrease. • Situations from the news involving percent change.
Skills	*Students will be able to:* • Compute quotients of fractions. • Apply the distributive property. • Convert fractions to decimals, including repeating decimals. • Solve for unknowns in percent problems. • Calculate percent error.
Performance Tasks	• Climbing the Steps of El Castillo • Dueling Candidates • Sale! • Track Practice • Cooking with the Whole Cup • Molly's Run • Art Class Variation 1 • Art Class Variation 2 • Buying Coffee • Robot Races • Gym Membership Plans • Proportionality • Buying Protein Bars and Magazines • Chess Club

	• Comparing Years • Double Discounts • Finding a 10% Increase • Friends Meeting on Bikes • How Fast is Usain Bolt? • Lincoln's Math Problem
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Check Your Readiness – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Gamification – A quick daily online game to collect data on students' level of content mastery • Guided Practice – Teacher-monitored activities where students practice new skills with support • Checkpoints– A short problem or question to assess each learning objective • Cool Down – A short problem or question at the end of a lesson to assess learning • Class Discussions – Encouraging students to explain their thinking and reasoning aloud • Quizzes - (by topic) - Unit Rate, Percent of a Number, Percent Increase or Decrease, Sales Tax and Discount **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) • End of the Unit Assessment – Illustrative Mathematics Unit 4 • Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. • Project-Based Learning (PBL) • Peer Teaching - Assess understanding as students explain a concept to a classmate • Teacher Questioning/Observation
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text • **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 7 student/teacher access to the digital platform • iReady My Path for students • BenQ Board

	• Schoology learning management system • Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Interdisciplinary Connections	Project Title: Proportionality in the Real World Overview: Students will explore how direct proportion is applied in real-world scenarios across various disciplines. They will create a presentation, report, or interactive project demonstrating proportional relationships in different fields. Driving Question: "Where do we see direct proportion in everyday life, and why is it important?" **Cross-Curricular Connections:** **New Jersey Science Learning Standards:** **MS-PS3-4:** Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. **MS-PS1-2:** Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. **MS-ESS3-3:** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Learning Activities	• Proportional Relationships with Fractions • Percent Increase and Decrease • Applying Percentages

Subject Area: Math **Grade Level: 7**	
Unit	**5 Rational Number Arithmetic**
Timeframe	4.5 Weeks
Established Goals	• Perform operations on rational numbers, which are all numbers that can be written as a positive or negative fraction. • Work with expressions that use the four operations on rational numbers. • Solve problems that involve interpreting negative numbers in context. • Solve linear equations of the form p + x = q, or px = q, where p and q are rational numbers.
NJSLS	• 7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. • 7.NS.A.1.a Describe situations in which opposite quantities combine to make 0. For example, in the first round of a game, Maria scored 20 points. In the second round of the same game, she lost 20 points. What is her score at the end of the second round? • 7.NS.A.1.b Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. • 7.NS.A.1.c Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. • 7.NS.A.1.d Apply properties of operations as strategies to add and subtract rational numbers.

	• 7.NS.A.2.a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. • 7.NS.A.2.c Apply properties of operations as strategies to multiply and divide rational numbers. • 7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers • 7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems. • MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How do you perform operations with rational numbers, which are numbers that can be expressed as fractions (including positive and negative numbers, decimals, and whole numbers)? • How can you use tables, number lines, and equations to represent these operations and solve problems in various contexts, such as temperature changes, elevation, and financial transactions?
Content Knowledge	*Students will learn to:* Interpret • Situations involving signed numbers. • Tables with signed numbers. • Bank statements with signed numbers. Represent • Addition of signed numbers on a number line. • Situations involving signed numbers. • Changes in elevation. • Position, speed, and direction.

	Generalize ● About subtracting and adding signed numbers. ● About differences and magnitude. ● About multiplying negative numbers. ● About additive and multiplicative inverses.
Skills	*Students will be able to:* ● Add and subtract rational numbers. ● Multiply and divide rational numbers. ● Solve equations with rational numbers.
Performance Tasks	**Adding and Subtracting Rational Numbers with Number Lines:** ● Bookstore Account ● Comparing Freezing Points ● Differences and Distances ● Differences of Integers ● Distances Between Houses ● Operations on the Number Line ● Rounding and Subtracting **Multiplying and Dividing Rational Numbers:** ● Drill Rig ● Why is a Negative Times a Negative Always Positive? ● Distributive Property of Multiplication ● Temperature Change ● Sharing Prize Money **Rational Numbers to Decimals:** ● Decimal Expansions of Fractions ● Equivalent Fractions Approach to Non-Repeating Decimals ● Repeating Decimal as Approximation ● Repeating or Terminating?
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Check Your Readiness – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback)

	● Gamification – A quick daily online game to collect data on students' level of content mastery ● Guided Practice – Teacher-monitored activities where students practice new skills with support ● Checkpoints– A short problem or question to assess each learning objective ● Cool Down – A short problem or question at the end of a lesson to assess learning ● Class Discussions – Encouraging students to explain their thinking and reasoning aloud ● Quizzes - (by topic) - Absolute Value, Add, Subtract, Multiply, and Divide Rational Numbers **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of the Unit Assessment – Illustrative Mathematics Unit 5 ● Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Project-Based Learning (PBL) – Real-world applications, such as designing a theme park with scaled measurements. ● Peer Teaching - Assess understanding as students explain a concept to a classmate ● Teacher Questioning/Observation
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 7 student/teacher access to the digital platform ● iReady My Path for students ● BenQ Board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) ● Project-Based Learning Activities (created by the teacher) ● Spiral review activities (created by the teacher)

Interdisciplinary Connections	**Project Title: Rational Numbers in the Real World** Overview: Students will explore how rational numbers are used in real-world scenarios across different subjects. They will create a presentation, report, or infographic demonstrating their findings. Driving Question: "How do rational numbers impact different areas of our daily lives?" **Cross-Curricular Connections**: **New Jersey Science Learning Standards:** **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ESS3-3:** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. **2023 NJSLS-ELA: Grade 7** **L.SS.7.1.** Demonstrate command of the system and structure of the English language when writing or speaking. **L.KL.7.2.** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
Learning Activities	• Adding and Subtracting Rational Numbers • Multiplying and Dividing Rational Numbers • Four Operations with Rational Numbers

Subject Area: Math **Grade Level: 7**	
Unit	**6 Expressions, Equations, and Inequalities**

Timeframe	5.5 Weeks
Established Goals	• Write and solve equations in the form $px + q = r$ and $p(x + q) = r$. • Write and solve inequalities in the form $px + q > r$ and $p(x + q) < r$. • Use properties of operations to justify why the expressions are equivalent.
NJSLS	• 7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. • 7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05." • 7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation • 7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. • 7.EE.B.4.a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? • 7.EE.B.4.b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. • 7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. • 7.NS.A.1.c Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How can you solve equations in the form $px + q = r$ and $p(x + q) = r$? • How can you solve inequalities in the form $px + q < r$ and $p(x + q) > r$? • How do you use properties of operations to rewrite and simplify algebraic expressions?
Content Knowledge	*Students will learn to:* Compare • Stories with corresponding tape diagrams. • Tape diagrams with corresponding equations. • Hanger diagrams and equations. • Solution pathways. • Descriptions of situations with corresponding inequalities. Explain • Strategies for using hanger diagrams to solve equations. • Different strategies for solving equations and inequalities. • Reasoning about situations, tape diagrams, and equations. • Strategies for identifying and writing equivalent expressions. Justify • Reasoning about inequalities. • Reasoning about solutions to inequalities. • The need for specific information in order to write and solve inequalities. • Reasoning about the distributive property. • Whether different sequences of calculations give the same result.

Skills	*Students will be able to:* • Solve equations. • Solve inequalities, represent solutions on a number line, and understand the concept of boundary points. • Use properties to rewrite and simplify expressions.
Performance Tasks	• Equivalent Expressions? • Writing Expressions • Ticket to Ride • Discounted Books • Gotham City Taxis • Shrinking • Stained Glass • Who is the Better Batter? • Guess My Number • Sports Equipment Set
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Check Your Readiness – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Gamification – A quick daily online game to collect data on students' level of content mastery • Guided Practice – Teacher-monitored activities where students practice new skills with support • Checkpoints– A short problem or question to assess each learning objective • Cool Down – A short problem or question at the end of a lesson to assess learning • Class Discussions – Encouraging students to explain their thinking and reasoning aloud • Quizzes - (by topic) Equivalent Expressions, Two Step Equations, Multi-Step Equations, Writing and Solving Inequalities **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) • End of the Unit Assessment – Illustrative Mathematics Unit 6 • Project/Performance Tasks - Lesson 19-Let's Put It To Work **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. • Project-Based Learning (PBL) – Real-world applications, such as designing a theme park with scaled measurements. • Peer Teaching - Assess understanding as students explain a concept to a classmate

	• Teacher Questioning/Observation
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text • **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 7 student/teacher access to the digital platform • iReady My Path for students • BenQ Board • Schoology learning management system • Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Interdisciplinary Connections	**Project Title: Algebra in Action!** Project Overview: Students will explore how algebraic expressions are used in various real-world scenarios. They will apply algebra to solve problems in science, economics, and everyday life, culminating in a presentation, report, or creative project showcasing their findings. Driving Question: "How do algebraic expressions help us understand and solve real-world problems?" **Cross-Curricular Connections:** **New Jersey Science Learning Standards** **MS-PS2-1:** Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. **MS-PS1-2:** Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. **2023 NJSLS-ELA: Grade 7**

	W.IW.7.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **SL.PI.7.4.** Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
Learning Activities	● Representing Situations of the Form px + q = r and p(x + q) = r ● Solving Equations of the Form px + q = r and p(x + q) = r and Problems That Lead to Those Equations ● Inequalities ● Writing Equivalent Expressions

Subject Area: Math **Grade Level: 7**	
Unit	**7 Angles, Triangles, and Prisms**
Timeframe	4 Weeks
Established Goals	● Investigate whether sets of angle and side length measurements determine unique triangles or multiple triangles, or fail to determine triangles. ● Study and apply angle relationships, learning to understand and use the terms “complementary,” “supplementary,” “vertical angles,” and “unique.” ● Analyze and describe cross-sections of prisms, pyramids, and polyhedra. ● Understand and use the formula for the volume of a right rectangular prism, and solve problems involving area, surface area, and volume.
NJSLS	● 7.EE.A Use properties of operations to generate equivalent expressions. ● 7.EE.A.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities ● 7.G.A Draw, construct, and describe geometrical figures and describe the relationships between them.

	• 7.G.A.2 Draw (with technology, with ruler and protractor, as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. • 7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. • 7.G.B Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. • 7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. • 7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. • 7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems. • MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How do you use various angle relationships, such as complementary, supplementary, and vertical angles, and learn to solve for unknown angles using equations? • What conditions are necessary to create unique triangles and use the triangle inequality theorem? • How do you analyze prisms to calculate their surface area and volume?
Content Knowledge	*Students will learn to:* Critique • Reasoning about measuring angles. • Reasoning about decomposition of prisms. • Reasoning about surface area of prisms. Explain • How to measure angles.

	• How to find unknown angle measurements. • How to find the volume of prisms. • How to find the surface area of prisms. Interpret • Situations involving intersecting lines in order to form a conjecture. • Which information is relevant to answer questions. • Equations representing angle measurements. • Situations involving volume and surface area. Justify • Whether or not shapes are identical copies. • Whether or not measurements determine identical copies. • Whether or not measurements determine unique triangles.
Skills	*Students will be able to:* • Identifying and Classifying Angles • Apply knowledge of angle relationships to solve equations. • Understand the conditions needed to create unique triangles. • Visualize and describe the 2D shapes created when slicing through prisms. • Calculate Surface Area and Volume
Performance Tasks	• Ladybug • Cube Ninjas • Drinking the Lake • Sand Under the Swingset
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Check Your Readiness – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Gamification – A quick daily online game to collect data on students' level of content mastery • Guided Practice – Teacher-monitored activities where students practice new skills with support • Checkpoints– A short problem or question to assess each learning objective • Cool Down – A short problem or question at the end of a lesson to assess learning • Class Discussions – Encouraging students to explain their thinking and reasoning aloud • Quizzes - (by topic) Angle Relationships, Constructing Triangles, Interior Angles of a Triangle, Surface Area, and Volume

	Summative Assessment (Evaluates mastery of skills at the end of a unit or grading period) ● End of the Unit Assessment – Illustrative Mathematics Unit 7 ● Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Project-Based Learning (PBL) ● Peer Teaching - Assess understanding as students explain a concept to a classmate ● Teacher Questioning/Observation
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 7 student/teacher access to the digital platform ● iReady My Path for students ● BenQ Board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) ● Project-Based Learning Activities (created by the teacher) ● Spiral review activities (created by the teacher)
Interdisciplinary Connections	**Project Title: Angles All Around Us!** Overview: Students will explore how angle relationships are used in various real-world applications, including architecture, engineering, physics, and art. They will analyze and apply different types of angles (complementary, supplementary, vertical, adjacent, and corresponding) to solve real-life problems and create a final product demonstrating their understanding. Driving Question: "How do angle relationships help shape the world around us?"

	Cross-Curricular Connections: **New Jersey Science Learning Standards:** **MS-PS2-2:** Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. **ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **2023 NJSLS-ELA: Grade 7** **W.IW.7.2.** Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **SL.PI.7.4.** Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
Learning Activities	● Angle Relationships ● Drawing Polygons with Given Conditions ● Solid Geometry

Subject Area: Math **Grade Level: 7**	
Unit	**8 Probability and Sampling**

Timeframe	4.5 Weeks
Established Goals	• Use your understanding of basic chance experiments to quantify how likely events are to happen and develop a working understanding of probability. • Design and use simulations to further understand probability as the frequency of the event occurring when repeating an experiment many times. • Represent sample spaces using tables, tree diagrams, and lists, and use the number of outcomes in a sample space to calculate an expected probability.
NJSLS	• 7.NS.A.2.d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats • 7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems. • 7.SP.A Use random sampling to draw inferences about a population. • 7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences. • 7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be. • 7.SP.B Draw informal comparative inferences about two populations • 7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable. • 7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. • 7.SP.C Investigate chance processes and develop, use, and evaluate probability models.

	• 7.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. • 7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. • 7.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observe frequencies; if the agreement is not good, explain possible sources of the discrepancy. • 7.SP.C.7.a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. • 7.SP.C.7.b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. • 7.SP.C.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. • 7.SP.C.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event. • 7.SP.C.8c Design and use a simulation to generate frequencies for compound events. • MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.6 Attend to precision. • MP.7 Look for and make use of structure.

	• MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	• How do you quantify the likelihood of single-step and multi-step events, using simulations and representations like tree diagrams and tables? • Using data collection methods, how do you analyze samples to make inferences about populations? • How do you compare groups using measures of center and variability?
Content Knowledge	*Students will learn to:* Describe • Observations and predictions during a game. • Patterns observed in repeated experiments. • Chance experiments to model situations. • A simulation used to model a situation. • Observations about data sets. Explain • Predictions. • How to determine which events are more likely. • Possible differences in experimental and theoretical probability. • How to use simulations to estimate probability. • How to use a simulation to answer questions about the situation. Justify • Whether situations are surprising and possible. • Which samples are or are not representative of a larger population. • Which samples correspond with each show, which show is most appropriate for a commercial, and whether a movie is eligible for an award. • Reasoning about samples and populations. • Whether or not differences between samples are meaningful. Compare • Sample spaces and probability of outcomes for different spinners. • Methods for writing sample spaces. • Heights of two groups. • Measures of center with samples. • Sampling methods. • Populations based on samples.

Skills	*Students will be able to:* ● Assigning numerical values to the likelihood of events. ● Model chance experiments to estimate probabilities. ● Use tables, tree diagrams, and lists to determine possible outcomes. ● Select representative samples from populations. ● Use sample data to infer information about a larger population. ● Analyze measures of center and variability to draw conclusions.
Performance Tasks	**Statistics:** ● Election Poll, Variation 1 ● Election Poll, Variation 2 ● Election Poll, Variation 3 ● Estimating the Mean State Area ● Mr. Brigg's Class Likes Math ● Valentine Marbles ● College Athletes ● Offensive Lineman **Probability:** ● Stay or Switch? ● Heads or Tails ● Rolling Dice ● How Many Buttons?
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Check Your Readiness – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Gamification – A quick daily online game to collect data on students' level of content mastery ● Guided Practice – Teacher-monitored activities where students practice new skills with support ● Checkpoints– A short problem or question to assess each learning objective ● Cool Down – A short problem or question at the end of a lesson to assess learning ● Class Discussions – Encouraging students to explain their thinking and reasoning aloud ● Quizzes - (by topic) Tree Diagrams, Simple and Compound Probability, Sampling **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of the Unit Assessment – Illustrative Mathematics Unit 8

	• Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. • Project-Based Learning (PBL) – Real-world applications, such as designing a theme park with scaled measurements. • Peer Teaching - Assess understanding as students explain a concept to a classmate • Teacher Questioning/Observation
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text • **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 7 student/teacher access to the digital platform • iReady My Path for students • BenQ Board • Schoology learning management system • Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Interdisciplinary Connections	Project Title: Designing a Sustainable City Overview: Students will work in groups to design a sustainable city. They will apply their mathematical skills to create blueprints, calculate distances, and analyze statistics about population, resources, and environmental impacts. This project integrates math with science, geography, and environmental studies. **Cross-Curricular Connections:** **New Jersey Science Learning Standards:**

	MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.
Learning Activities	• Probabilities of Single-Step Events • Probabilities of Multi-Step Events • Sampling • Using Samples

Subject Area: Math **Grade Level: 7**	
Unit	**9 Putting It All Together**
Timeframe	2.5 Weeks
Established Goals	• Calculate and estimate quantities associated with running a restaurant. • Explore a variety of different contexts, such as population density, Fermi problems, measurement error, and deforestation. • Build a trundle wheel and design a five-kilometer race course.
NJSLS	• 7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. • 7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. • 7.EE.B Solve real-life and mathematical problems using numerical and algebraic expressions and equations. • 7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. • 7.EE.B.4.a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic

	solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? • 7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. • 7.G.B Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. • 7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. • 7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. • 7.NS.A.2.d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats. • 7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers. • 7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems. • 7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour. • 7.RP.A.2 Recognize and represent proportional relationships between quantities • 7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. • 7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

	● MP.1 Make sense of problems and persevere in solving them. ● MP.2 Reason abstractly and quantitatively. ● MP.3 Construct viable arguments & critique the reasoning of others. ● MP.4 Model with mathematics. ● MP.5 Use appropriate tools strategically. ● MP.6 Attend to precision. ● MP.7 Look for and make use of structure. ● MP.8 Look for and express regularity in repeated reasoning.
Essential Questions	● How can you calculate costs, plan profits, and design a floor plan?—all using math they've learned about ratios, proportions, and geometry. ● Using proportional reasoning, how do you write algebraic expressions? ● How do you use maps and scales to create a course?
Content Knowledge	*Students will learn to:* Justify ● Choices and predictions in the context of running a restaurant. ● Reasoning about length, area, and volume in the context of a restaurant. ● Reasoning about the forested area on a map. Represent ● Costs of ingredients in a spreadsheet. ● Situations using expressions and equations. ● A map of a designed race course. Critique ● Peer reasoning about calculations of age, heart beats, and hairs. ● Peer reasoning about percent error in length, area, and volume measurement. ● Peer methods of measuring distance.
Skills	*Students will be able to:* ● Use their knowledge of ratios, percentages, and operations to figure out the expenses and potential income of a restaurant. ● Apply math skills to real-life situations, requiring students to think critically and find solutions. ● Explore different ways to measure distance and practice accuracy in measurement. ● Create a restaurant floor plan and designing the race course both involve using scale and proportion.

Performance Tasks	
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Check Your Readiness – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Gamification – A quick daily online game to collect data on students' level of content mastery ● Guided Practice – Teacher-monitored activities where students practice new skills with support ● Checkpoints– A short problem or question to assess each learning objective ● Cool Down – A short problem or question at the end of a lesson to assess learning ● Class Discussions – Encouraging students to explain their thinking and reasoning aloud ● Quizzes - (by topic) Rational Number Operations, Equations, Inequalities, Angles and Circles **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of the Unit Assessment – Illustrative Mathematics Unit 9 ● Project/Performance Tasks **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Project-Based Learning (PBL) ● Peer Teaching - Assess understanding as students explain a concept to a classmate ● Teacher Questioning/Observation
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 7 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 7 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 7 student/teacher access to the digital platform ● iReady My Path for students ● BenQ Board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, Quizlet, 99 Math, Number Hive, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice

	• Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)

Interdisciplinary Connections	• Engineering Standard: NJSLS Science - HS-ETS1-2 (Engineering Design) Description: Design a solution to a complex real-world problem by breaking it into smaller, more manageable problems that can be solved through engineering.
	  ○ Students model projectile trajectories or structural load distributions with quadratics to find maximum height or impact time (math), applying these to optimize engineering designs like bridges or ramps (engineering).
	• Career Readiness Standard: NJSLS Career Readiness, Life Literacies, and Key Skills - 9.1.12.FP.2 Description: Analyze how financial institutions use mathematical models to manage risk and maximize returns on investments and loans.
	  ○ Students solve quadratics (for break-even points) to model investment returns or loan balances (math), evaluating financial strategies used by banks (career readiness).
	• Social Studies Standard: NJSLS Social Studies - 6.1.12.EconNE.1.b Description: Use economic models to analyze how competition and market structures affect pricing, production, and profits over time.
	  ○ Students create quadratic equations to model revenue versus cost (math), analyzing how market factors like supply and demand influence profit maximization (social studies).

Learning Activities	• Running a Restaurant • Making Connections • Designing a Course

21st Century Skills: Career Readiness, Life Literacies, and Key Skills	**Credit and Debt Management:** • 9.1.8.CDM.1: Compare and contrast the use of credit cards and debit cards for specific purchases and the advantages and disadvantages of using each. • 9.1.8.CDM.2: Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages, lines of credit) and compare and calculate the interest rates associated with each.

- 9.1.8.CDM.3: Compare and contrast loan management strategies, including interest charges and total principal repayment costs.

Credit Profile:

- 9.1.8.CP.1: Compare prices for the same goods or services.
- 9.1.8.CP.2: Analyze how spending habits affect one's ability to save.

Economic and Government Influences:

- 9.1.8.EG.1: Explain how taxes affect disposable income and the difference between net and gross income
- 9.1.8.EG.2: Explain why various sources of income are taxed differently.
- 9.1.8.EG.3: Explain the concept and forms of taxation and evaluate how local, state and federal governments use taxes to fund public activities and Initiatives.

Financial Institutions:

- 9.1.8.FI.2: Determine the most appropriate use of various financial products and services to borrow and access money for making purchases (e.g., ATM, debit cards, credit cards, check books, online/mobile banking).
- 9.1.8.FI.3: Evaluate the most appropriate financial institutions to assist with meeting various personal financial needs and goals.
- 9.1.8.FI.4: Analyze the interest rates and fees associated with financial products.

Planning and Budgeting:

- 9.1.8.PB.3: Explain how to create a budget that aligns with financial goals.
- 9.1.8.PB.4: Construct a simple personal savings and spending plan based on various sources of income and different stages of life (e.g. teenager, young adult, family).

Career Awareness and Planning:

- 9.2.8.CAP.1: Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest.
- 9.2.8.CAP.2: Develop a plan that includes information about career areas of interest.
- 9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.
- 9.2.8.CAP.4: Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement.
- 9.2.8.CAP.8: Compare education and training requirements, income potential, and primary duties of at least two jobs of interest.

	• 9.2.8.CAP.9: Analyze how a variety of activities related to career preparation (e.g., volunteering, apprenticeships, structured learning experiences, dual enrollment, job search, scholarships) impacts postsecondary options. • 9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level. **Creativity and Innovation:** • 9.4.8.CI.2: Repurpose an existing resource in an innovative way (e.g., 8.2.8.NT.3). • 9.4.8.CI.3: Examine challenges that may exist in the adoption of new ideas (e.g., 2.1.8.SSH, 6.1.8.CivicsPD.2). **Critical Thinking and Problem Solving:** • 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1). **Digital Citizenship:** • 9.4.8.DC.4: Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences. **Information and Media Literacy:** • 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b). • 9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations. 9.4.8.IML.5: Analyze and interpret local or public data sets to summarize and effectively communicate the data.
Use of Technology	• All students are one-to-one with Chromebooks for day-to-day use in the classroom. • A variety of math websites are used daily to engage and track student progress such as Quizizz, Kahoot, Blooket, Gimkit, Quizalize, Quizlet, and iReady and the Math in Focus digital textbook. • Schoology is used to upload assignments, post links, administer assessments, post daily agendas, discussions, and a messaging tool. • All classrooms have access to an interactive BenQ Board with speaker system so lessons can include video, sound, and interactive lessons for all learners.
Technology Integration: Computer Science and Design Thinking	• TECH 8.2.12.D.1 Design and create a prototype to solve a real world problem using a design process, identify constraints addressed during the creation of the prototype, identify trade-offs made, and present the solution for peer review • TECH 8.1.12.A.2 Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related are for review • TECH 8.1.12.A.CS2 Select and use applications effectively and productively

Accommodations and Modifications: Special Education and 504 Plans	• Special Education modifications will be implemented as per the Individualized Education Programs of the students in the class. • Please click here for an overview of the variety of accommodations set in place for IEPs and 504 plans. • Accommodations will be dictated by the general makeup of the class. Specific to 7th-grade math: • Use of calculator • Use of multiplication chart • Use of manipulatives • Use of graph paper • Use of visual aids and organizational support • Modified problems using easier numbers • Adjustment of the number of problems assigned • Use of worked examples as a model for independent work • Allow use of index card for reminders (integer rules, exponent rules, fraction rules)
Accommodations and Modifications: Multilingual Learners	• Coordinate activities with ESL teacher to accommodate individual learning needs • Provide appropriate leveled texts • Students complete the ACCESS 2.0 test yearly to measure growth and guide instruction Specific to 7th-grade math: • Peer tutoring or assistance • Use of manipulatives • Visual aids and organizational support • Use of bilingual and picture-based resources • Use of worked examples limited to mathematical symbols and numbers • Visual instructions
Accommodations and Modifications: Risk for School-Failure	• Counseling interventions • Parent meetings • Student meetings • Individual and group counseling • Individualized instruction • Small-group instruction • Peer tutoring or assistance • Reduced distractions • Suggest joining 21st Century Community Learning Centers Program (21st CCLC) Specific to 7th-grade math: • Math skills lab • Peer tutoring or assistance

	• Use of manipulatives • Visual aids and organizational support • Simplified word problems • Adjusting the number of word problems assigned • Use of worked examples as a model for independent work • Emphasis on mastery of core skills
Accommodations and Modifications: Gifted and Talented Learners	• Inclusive identification process that depicts the child as a whole in order to provide the best learning environment possible for each student (Click here for Identification Profile Sample) • Tiered Services utilizing NAGC K-12 Programming standards to ensure individual needs are being met Click here for the GATE program handbook. • Formative Assessment utilized in order to promote acceleration, curriculum compacting, grouping, and asynchronous learning where appropriate • Social-emotional support • Increased depth and complexity of the grade-level curriculum • Alternative assessment methods Specific to 7th-grade math: • Independent research projects incorporating measures of central tendency and variability, ratio and percent • Real-world, open-ended and higher-order-thinking problem-solving tasks •
MTS/RTI Alignment	The VTSD Response to Intervention and MTSS Manual and the NJTSS Early Reading Screening Guidelines outline the policies and procedures that 'exist to ensure a coordinated system for planning, delivering, measurement, and modification of intervention and referral services implemented in each school by a multidisciplinary team to address the learning, behavioral, and health needs of all students. (N.J.A.C. 6A:16-8)' This requirement is fulfilled through the district New Jersey Tiered System of Support (NJTSS) Early Reading grant initiative and our Multi-Tiered Systems of Support (MTSS) Response to Intervention plan which includes A. A continuum of supports and interventions available in each school to support learning, behavior, and health needs; B. Action plans for interventions based on student data and desired outcomes; C. Professional development for multidisciplinary teams and staff who provide interventions; and D. Review and assessment of effectiveness of interventions (e.g., progress monitoring).
Career Education with Diversity, Equity and Inclusion	**Each career will be explored in the context of its content area, along with specific lessons on all named professionals below.** **1. Data Analyst** • **Connection to 7th Grade Standards**: Data analysts use skills related to the analysis of data sets, working with percentages, means, and graphs. • **Dr. Shirley Ann Jackson:** An African American physicist and data scientist known for her groundbreaking work in

the fields of science and technology.

2. Statistician

- **Connection to 7th Grade Standards**: Statisticians work with concepts such as probability, data representation, and statistical measures (mean, median, mode).
- **Dr. R. L. (Bob) Parker:** As a Latino in the field of statistics, Dr. Parker has worked on promoting diversity in both academic and professional settings, advocating for the representation of Latinx individuals in STEM.

3. Accountant

- **Connection to 7th Grade Standards**: Understanding percentages, ratios, and proportional reasoning is essential in accounting, especially when working with budgets, taxes, and financial planning.
- **Mitch G. Brown:** A transgender professional in accounting who helps break barriers and pave the way for more inclusivity of the transgender community in corporate and professional environments.

4. Actuary

- **Connection to 7th Grade Standards**: Actuaries need a strong understanding of probability, ratios, and data analysis, which are part of the 7th-grade math curriculum.
- **Cecilia (Cec) M. Lopes:** As a disabled actuary, Lopes has been vocal about the need for greater accessibility and inclusivity in the profession.

5. Operations Research Analyst

- **Connection to 7th Grade Standards**: The work of operations research analysts often involves understanding ratios, proportions, and working with data to optimize processes and improve decision-making.
- **Dr. Jin-Young Lee**: A Korean American researcher in the field of operations research, particularly known for her work on stochastic models and optimization.

6. Engineer

- **Connection to 7th Grade Standards**: Engineers need a strong foundation in geometry, measurement, ratios, and proportions. These concepts are essential for designing structures, machines, and systems.
- **Dr. Wanda Austin:** known for her leadership in engineering and operations management and for paving the way for women and people of color in aerospace engineering.

7. Economist

- **Connection to 7th Grade Standards**: Economists use mathematical skills like calculating percentages, analyzing

data, and understanding proportional relationships, all of which are part of the 7th-grade math standards.

- **Dr. Maya Sen:** An Indian-American economist whose research includes topics such as racial inequality, political polarization, and the effects of political decision-making on economic outcomes.

8. Architect

- **Connection to 7th Grade Standards**: Architects rely on geometry, measurement, and ratios when designing structures.
- **Jewel P. Richardson:** a disabled architect known for her efforts in designing spaces that are universally accessible and operationally efficient.

9. Web Developer

- **Connection to 7th Grade Standards**: Web developers use math concepts like ratios and proportions when designing responsive websites and ensuring they work across different devices and screen sizes.
- **Sara Soueidan:** A Lebanese web designer and front-end developer who specializes in CSS, SVG, and accessibility in web development.

10. Cartographer

- **Connection to 7th Grade Standards**: Cartographers need to understand scale, ratios, and geometry. These skills are necessary when working with maps, graphs, and spatial representations.
- **Christopher A. Johnston:** A prominent cartographer and GIS professional, specializing in digital mapping and geospatial data analysis. He is openly gay and advocates for LGBTQ+ visibility in tech fields, including GIS and cartography.

11. Surveyor

- **Connection to 7th Grade Standards**: Surveyors use geometric and measurement principles, along with basic algebra, to calculate distances and plot coordinates.
- **Dr. Diana M. Ruiz:** A Latina female professional who has worked extensively in the surveying and geospatial field, focusing on operations and optimization of surveying technologies.

12. Environmental Scientist

- **Connection to 7th Grade Standards**: Environmental scientists often analyze data on weather, pollution, and other environmental factors.
- **Dr. Robert Bullard –** Known as the “father of environmental justice,” Dr. Robert Bullard is a Black environmental scientist who has focused on the intersection of race, class, and environmental policy.

	13. Retail Manager ● **Connection to 7th Grade Standards**: Retail managers use math concepts like percentages (for sales), ratios (for inventory management), and basic algebra to analyze sales data and manage financials. ● **Linda Yu:** An Asian-American retail manager with extensive experience in operations management for several leading retail chains. **14. Logistics Coordinator** ● **Connection to 7th Grade Standards**: Logistics coordinators need to understand concepts like proportions, ratios, and geometry to plan routes, manage inventory, and optimize transportation. ● **Eric Johnson:** A disabled logistics coordinator who advocates for greater inclusion and accessibility in the logistics and supply chain management fields.

	•
	•
	•
	•
	•

ADDITIONAL INFORMATION

21st Century Skills Integration: Career Readiness, Life Literacies, and Key Skills	• 9.1.12.CFR.4: Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures. • 9.1.12.CDM.1: Identify the purposes, advantages, and disadvantages of debt. • 9.1.12.CDM.6: Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit. (e.g., student loans, credit cards, auto loans, mortgages, etc.). • 9.1.12.CDM.8: Compare and compute interest and compound interest and develop an amortization table using business tools. • 9.1.12.PB.1: Explain the difference between saving and investing. • 9.1.12.PB.5: Analyze how changes in taxes, inflation, and personal circumstances can affect a personal budget. • 9.1.12.PB.6: Describe and calculate interest and fees that are applied to various forms of spending, debt and saving. • 9.2.12.CAP.1: Analyze unemployment rates for workers with different levels of education and how the economic, social, and political conditions of a time period are affected by a recession. • 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth. • 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment. • 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a). • 9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1). • 9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3). • 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a). • 9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data. • 9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments. • 9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6). • 9.1 Standards Link - https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.1FinancialLiteracy.pdf • 9.2 Standards Link - https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.2CareerAwareness.pdf • 9.4 Standards Link - https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.4LifeLiteraciesandKeySkills.pdf

	• Our CTE offerings are extensive at the HS level. Currently, we offer 8 CTE programs at Vernon Township High School including: Engineering, Hospitality, Allied Health, Marketing, Construction, Computer Science, Cosmetology, and Graphic Design. • ARTSTANDING is a district-wide event that allows all "Special" areas to be highlighted -- of which CTE programs and Career Pathways are included.

Career Education with Diversity, Equity, and Inclusion	• Data Analyst/Specialist
	• Engineering
	  ○ **Dr. Shirley Ann Jackson**. She is an African American physicist and electrical engineer who made significant contributions to telecommunications while working at Bell Labs. Her research laid the groundwork for technologies such as touch-tone dialing, fiber optics, and caller ID. Dr. Jackson later became the president of Rensselaer Polytechnic Institute (RPI) and was the first African American woman to earn a Ph.D. from MIT in any field.
	• Accounting
	• Economist
	• Computer Science/Software Developer
	  ○ **Rami Ismail**, a Dutch-Egyptian game developer and co-founder of Vlambeer, the studio behind popular indie games like *Nuclear Throne* and *Ridiculous Fishing*. He has been a strong advocate for diversity and inclusion in the gaming industry, helping developers from underrepresented backgrounds gain visibility and access to resources through his initiatives like *Presskit()* and *Medaverse*.
	• Actuary
	• Architect
	  ○ **Zaha Hadid**, a British-Iraqi architect known for her bold, futuristic designs and innovative use of fluid, curving forms. She was the first woman to receive the **Pritzker Architecture Prize** in 2004 and designed iconic buildings such as the **Heydar Aliyev Center in Azerbaijan**, the **London Aquatics Centre**, and the **Guangzhou Opera House**. Her work pushed the boundaries of architecture, blending technology, art, and engineering in groundbreaking ways.
	• Teacher
	• Finance and Banking
	• Sales and Marketing Analyst
	• Construction and Carpentry
	• Healthcare Careers

Diversity, Equity, and Inclusion	**Analyzing Real-World Data on Social Issues**: Use functions and statistical analysis to examine data sets related to social justice topics, such as income inequality or environmental impacts on different communities. This approach helps students apply mathematical concepts to understand and discuss societal issues. **Exploring Mathematics in Various Cultures**: Investigate mathematical contributions from diverse cultures, like the development of algebra in the Islamic world or ancient Chinese mathematics. This can deepen students' appreciation for the global nature of mathematical thought.

	Project-Based Learning on Community Issues: Encourage students to identify local community challenges and use precalculus concepts to propose solutions. For example, modeling traffic patterns to improve safety or analyzing demographic trends to address local needs. **Collaborative Group Work Emphasizing Diverse Perspectives**: Design group activities that require students to approach problems from multiple viewpoints, fostering an inclusive environment where diverse problem-solving strategies are valued.
Technology Integration: Computer Science and Design Thinking	● Course catalog includes CTE programs such as Engineering, Computer Science, and Graphic Arts to provide technological opportunities to prepare for careers ● All students are one-to-one with Chromebooks for day-to-day use in the classroom ● All students log onto computers where they utilize a variety of instructional and online tools to enhance their classroom instruction as well as aid in the problem solving process ● Many of the concepts that are explored in the high school mathematics curriculum involve solving problems using a step by step process and are eventually summarized using and algorithm ● All classrooms have access to an interactive Smart Board with speaker system so lessons can include video, sound, and interactive lessons for all learners ● TECH.8.1.8 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. ● TECH.8.1.8.A.CS1 Understand and use technology systems. ● TECH.8.1.8.A.CS2 Select and use applications effectively and productively. ● TECH.8.1.8.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. ● TECH.8.1.8.C.CS1 Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media. ● TECH.8.1.8.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. ● TECH 8.2.12.D.1 Design and create a prototype to solve a real world problem using a design process, identify constraints addressed during the creation of the prototype, identify trade-offs made, and present the solution for peer review ● TECH 8.1.12.A.2 Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related are for review ● TECH 8.1.12.A.CS2 Select and use applications effectively and productively ● 8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers. ● 8.2.12.ED.2: Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback. ● 8.2.12.ED.3: Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.

	• 8.2.12.ED.4: Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience • 8.2.12.ED.5: Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics). • 8.2.12.ED.6: Analyze the effects of changing resources when designing a specific product or system (e.g., materials, energy, tools, capital, labor). • 8.2.12.ITH.1: Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints. • 8.2.12.ITH.2: Propose an innovation to meet future demands supported by an analysis of the potential costs, benefits, trade-offs, and risks related to the use of the innovation. • 8.2.12.ITH.3: Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society's economy, politics, and culture. • 8.2.12.NT.1: Explain how different groups can contribute to the overall design of a product. • 8.2.12.NT.2: Redesign an existing product to improve form or function. • 8.2.12.ETW.1: Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation, and maintenance of a chosen product. • 8.2.12.ETW.2: Synthesize and analyze data collected to monitor the effects of a technological product or system on the environment. • 8.2.12.ETW.3: Identify a complex, global environmental or climate change issue, develop a systemic plan of investigation, and propose an innovative sustainable solution. • 8.2.12.EC.1: Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made. • 8.2.12.EC.2: Assess the positive and negative impacts of emerging technologies on developing countries and evaluate how individuals, non-profit organizations, and governments have responded. • 8.2.12.EC.3: Synthesize data, analyze trends, and draw conclusions regarding the effect of a technology on the individual, culture, society, and environment and share this information with the appropriate audience. • 8.2.12.ETW.4: Research historical tensions between environmental and economic considerations as driven by human needs and wants in the development of a technological product and present the competing viewpoints. • https://www.nj.gov/education/standards/compsci/Docs/2020%20NJSLS-CSDT.pdf

Differentiation and Accommodations for: Special Education	• Special Education modifications will be implemented as per the Individualized Education Programs of the students in the class.
	• Such as:
	  ○ Use of calculator, graphing calculator, desmos calculator (on chromebook)
	  ○ Manipulatives - base blocks, algebra tiles, etc.
	  ○ Graph Paper
	
	• Please click here for an overview of the variety of accommodations set in place for IEP's and 504's

	• Accommodations will be dictated by the general makeup of the class.

MTSS/RTI	• The VTSD Response to Intervention and MTSS Manual and the NJTSS Early Reading Screening Guidelines outline the policies and procedures that 'exist to ensure a coordinated system for planning, delivering, measurement, and modification of intervention and referral services implemented in each school by a multidisciplinary team to address the learning, behavioral, and health needs of all students. (N.J.A.C. 6A:16-8)' This requirement is fulfilled through the district New Jersey Tiered System of Support (NJTSS) Early Reading grant initiative and our Multi-Tiered Systems of Support (MTSS) Response to Intervention plan which includes
	  ○ a. A continuum of supports and interventions available in each school to support learning, behavior, and health needs;
	  ○ b. Action plans for interventions based on student data and desired outcomes;
	  ○ c. Professional development for multidisciplinary teams and staff who provide interventions; and
	  ○ d. Review and assessment of effectiveness of interventions (e.g., progress monitoring).

English Language Learners	• Coordinate activities with ESL teacher to accommodate individual learning needs • Provide appropriate leveled texts • Students complete the ACCESS 2.0 test yearly to measure growth and guide instruction
Risk for School-Failure	• Credit Retrieval Programs • Apex - virtual • Viking Success Academy • Counseling interventions • Parent meetings • Student meetings • Individual and Group counseling
Gifted and Talented Learners	• Inclusive Identification process that depicts the child as a whole in order to provide the best learning environment possible for each student. Click here for Identification Profile Sample • Tiered Services utilizing NAGC K-12 Programming standards to ensure individual needs are being met. Click here for services map. • Formative Assessment utilized in order to promote acceleration, curriculum compacting, grouping, and asynchronous learning where appropriate. • Dynamic Model for Gifted Program Improvement is utilized in order to verify that our program is employing not only up to date methods, but also effective ones. • Teacher training in Gifted Education.
Climate Change	• The following standards will be implemented in the topics that discuss using functions and equations, specifically in units 2, 3, 4, 5, 6, and 7. • A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. Climate Change Example: Students may create equations and/or inequalities to represent the economic impact of climate change. • A.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities

	describing nutritional and cost constraints on combinations of different foods. Climate Change Example: Students may represent constraints describing the economic impact of climate change by equations, inequalities, and/or by systems of inequalities, and interpret solutions as viable or nonviable options. ● A.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law to highlight resistance R. Climate Change Example: Students may rearrange formulas related to the economic impact of climate change to highlight a quantity of interest, using the same reasoning as in solving equations. ● F.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. Climate Change Example: Students may use function notation to determine the amount of carbon dioxide produced by burning a given number of molecules of ethane (gasoline), m, where c(m) is the number of molecules of carbon dioxide. ● F.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. Climate Change Example: Students may relate the domain of a function c(m) representing the amount of carbon dioxide produced by burning m molecules of ethane (gasoline), to its graph in order to determine the appropriate domain for c(m). ● F.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. Climate Change Example: Students may calculate the average rate of change of a function c(m) presented symbolically or as a table, where c(m) represents the amount of carbon dioxide produced by burning a given number of molecules of ethane (gasoline).

Tab 2