

Foundations of Math 9/10
Required
Full Year

Table of Contents

| | |
|--|----|
| Statement of Purpose..... | 3 |
| Unit 1: Number Sense and Operations..... | 4 |
| Unit 2: Fractions and Decimals..... | 8 |
| Unit 3: Problem Solving..... | 14 |
| Unit 4: Time Management..... | 19 |
| Unit 5: Measurement..... | 24 |
| Unit 6: Money and Payment..... | 30 |
| Unit 7: Spreadsheets and Budgets..... | 35 |
| Unit 8: Graphs and Charts..... | 40 |

Statement of Purpose:

The Statement of Purpose outlines the reason for the course and the basic premise of the course. The Summary is in the next section.

Summary of the Course:

Foundations of Math 9/10 is a course designed to guide the planning of instruction and assessment for students with Multiple Disabilities at Sayreville War Memorial High School. The premise of the class is to cover topics that range from Time, Budgeting to Graphs. The goal is to align the curriculum with the mission of SWMHS and to offer a comprehensive educational experience which enables students to maximize their unique intellectual potential (SWMHS Mission Statement).

Students enrolled in this course will study various mathematics topics designed to help students develop skills related to basic mathematics. These skills will assist students in becoming better problem solvers and increase understanding of real-world mathematical applications. This course is intended to develop students' ability to perform life skill related mathematics.

To demonstrate a cohesive and complete implementation plan the following general suggestions are provided:

- The use of various formative assessments is encouraged to provide an ongoing method of determining the current level of understanding the students have of the material presented.
- Homework, when assigned, should be relevant and reflective of the current teaching taking place in the classroom.
- Organizational strategies should be in place that allow the students the ability to take the information gained in the classroom and put in in terms that are relevant to them.
- Instruction should be differentiated to allow students the best opportunity to learn.
- Assessments should be varied and assess topics of instruction delivered in class.
- Modifications to the curriculum should be included that address students with Individualized Educational Plans (IEP), Multilingual Learners (ML), and those requiring other modifications (504 plans) as well as for those twice gifted.

Unit 1: Number Sense and Operations

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **1st Marking Period**
Length: **3 weeks**
Status: **Published**

Summary of Unit

Students will be able to name, count, skip count, and compare numbers. Students will perform arithmetic on integers and apply their ability to add, subtract, multiply, and divide to solve problems related to daily living skills. Students will represent numbers in a variety of forms and use numbers in diverse situations.

Enduring Understanding

By the end of this unit students will know:

- Naming, Ordering, Counting Numbers in different ways
- Using Inequalities to Compare Numbers and Prices
- Additions, Subtraction, Multiplication, and Division with Integers
- Comparing Prices and Quantities (which has more, which is cheaper etc.)

Essential Questions

- Can you read and write numbers?
- How can numbers be compared and ordered?
- How can arithmetic be used to solve real-world problems?

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments
- Observations

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLS |
|--------------------------------|-----------------|--|--|--|
| Identifying and Count | 5-8 Days | <p>Students will name numbers in different ways.</p> <p>Students will skip count.</p> <p>Students will order numbers on a number line.</p> | <p>Express numbers as numerals and in written form.</p> <p>Count by common intervals (money, pairs).</p> <p>Find missing numbers in common intervals.</p> <p>Use common units to refer to numbers in different ways.</p> | <p>MA.K.CC.A.1</p> <p>MA.K.CC.A.2</p> <p>MA.K.CC.A.3</p> <p>MA.1.NBT.A</p> <p>MA.1.NBT.B.2</p> |
| Comparing Numbers | 5 Days | <p>Students will identify and correctly use the following symbols: $<$, $>$, $=$.</p> <p>Students will compare fractions and whole numbers in real life problems.</p> | <p>Use inequalities to compare integers.</p> <p>Cross multiply to compare fractions.</p> <p>Recipe related comparing fractional quantities.</p> | <p>MA.K.CC.C.6</p> <p>MA.K.CC.C.7</p> <p>MA.2.NBT.A.4</p> <p>MA.1.NBT.B.3</p> <p>MA.1.OA.D.7</p> |
| Operating with Integers | 5 Days | <p>Students will operate with integers utilizing addition, subtraction, and multiplication.</p> | <p>Add, subtract, and multiply whole numbers.</p> <p>Find totals.</p> | <p>MA.1.OA.D.8</p> <p>MA.3.OA.A.3</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|--|--|--|--|
| | | Translate colloquial terms into operations “how many more, how many fewer” etc | Compute using arrays. 1 and 2 step word problems related to daily life. | |
|--|--|--|--|--|

| | |
|--------------|--|
| MA.K.CC.A.1 | Count to 100 by ones and by tens. |
| MA.K.CC.A.2 | Count forward beginning from a given number within the known sequence (having to begin at 1). |
| MA.K.CC.A.3 | Write numbers from 0 to 20. Represent a number of objects with a written numeral (with 0 representing a count of no objects). |
| MA.3.OA.A.3 | Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings of objects in equal groups, arrays, and measurement quantities, e.g., by using drawings with a symbol for the unknown number to represent the problem. |
| MA.K.CC.C.6 | Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. |
| MA.1.OA.D.7 | Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. |
| MA.K.CC.C.7 | Compare two numbers between 1 and 10 presented as written numerals. |
| MA.1.OA.D.8 | Determine the unknown whole number in an addition or subtraction equation involving three whole numbers. |
| MA.2.NBT.A.4 | Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. |
| MA.1.NBT.A | Extend the counting sequence. |
| MA.1.NBT.B.2 | Understand that the two digits of a two-digit number represent amounts of tens and ones; understand the following as special cases: |
| MA.1.NBT.B.3 | Compare two two-digit numbers based on meanings of the tens and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons with the symbols $>$, $=$, and $<$. |

Standards

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed.

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Design lessons using UDL principles Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy. 9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 2: Fractions and Decimals

Content Area: **Mathematics**
Course(s):
Time Period: **1st Marking Period**
Length: **5 weeks**
Status: **Published**

Section Title

Summary of Unit

Students will be able to identify, order, compare, and operate with fractions.

Enduring Understanding

By the end of this unit students will know:

- Identifying Fractions and Decimals
- Ordering Fractions and Decimals
- Fraction Equivalents
- Operations with Fractions
- Operations with Decimals

Essential Questions

- What are different ways to represent fractions?
- How are fractions and decimals ordered?
- What are the practical applications of fractions and decimals?

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Observations
- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLs |
|---|----------|---|--|--|
| Identifying Fractions and Decimals | 3-5 Days | <p>Students will read and write fractions utilizing their understanding of the numerator and denominator.</p> <p>Students will identify fractions from visual representations.</p> <p>Students will read and write decimals utilizing their understanding of place value.</p> <p>Students will identify decimals from visual representations.</p> | <p>Use visuals to introduce common fractions (halves, thirds, fourths, etc.)</p> <p>Classify various fractions using visuals. Be sure to incorporate improper fractions.</p> <p>Use manipulatives to create and identify parts of wholes.</p> <p>Have students will write decimals from verbal and written expressions as well as visual models.</p> | <p>MA.3.NF.A.2</p> <p>MA.3.NF.A.2b</p> <p>MA.3.NF.A.2a</p> <p>MA.4.NF.B.3</p> <p>MA.4.NF.C.5</p> <p>MA.4.NF.C.6</p> <p>MA.4.NF.C.7</p> |
| Ordering Fractions and Decimals | 3-5 Days | <p>Students will compare fractions and order from largest to smallest and</p> | <p>Compare fractions with like denominators.</p> | <p>MA.3.NF.A.3d</p> <p>MA.4.NF.C.5</p> <p>MA.4.NF.C.6</p> <p>MA.4.NF.C.7</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|----------------------------------|----------|--|---|--|
| | | <p>smallest to largest.</p> <p>Students will compare decimals and order from largest to smallest and smallest to largest.</p> <p>Students will place fractions and decimals in the appropriate place on a number line.</p> | <p>Compare fractions with like numerators.</p> <p>Use the place value within decimals to compare decimals.</p> <p>Model comparing fractions and placing them on a number line.</p> <p>Model comparing decimals and placing them on a number line.</p> | |
| Equivalent Fractions | 3-5 Days | <p>Students will identify equivalent fractions using visual representations.</p> <p>Students will reduce fractions to identify equivalents.</p> <p>Students will identify fractions and decimals that are equivalent.</p> | <p>Use models of different shapes to represent equivalencies.</p> <p>Use division to reduce fractions.</p> <p>Use division to convert fractions to decimals.</p> <p>Use place value and simplification to convert from decimals to fractions.</p> | <p>MA.3.NF.A.3a</p> <p>MA.3.NF.A.3b</p> <p>MA.3.NF.A.3c</p> <p>MA.4.NF.C.5</p> <p>MA.4.NF.C.6</p> <p>MA.4.NF.C.7</p> |
| Operations with Fractions | 3-5 Days | <p>Students will add and subtract</p> | <p>Provide students with examples or</p> | <p>MA.4.NF.B.3</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|-----------------|---|---|---|
| | | <p>fractions with common denominators.</p> <p>Students will find common denominators in order to add and subtract fractions.</p> <p>Students will multiply fractions.</p> <p>Students will divide fractions by multiplying by the reciprocal.</p> | <p>each type of problem.</p> <p>Allow students to practice skills as a class, with one-on-one instruction, and independently.</p> <p>Discuss real-world examples of operations with fractions.</p> | <p>MA.4.NF.B.4</p> <p>MA.3.NF.A.1</p> <p>MA.3.NF.A.2</p> <p>MA.5.NF.B.5</p> <p>MA.5.NF.B.6</p> <p>MA.5.NF.B.7</p> |
| <p>Operations with Decimals</p> | <p>3-5 Days</p> | <p>Students will use place values to add and subtract decimals.</p> <p>Students will use place values to multiply and divide fractions.</p> <p>Students will add and subtract money amounts.</p> | <p>Provide students with examples of each type of problem.</p> <p>Allow students to practice skills as a class, with one-on-one instruction, and independently.</p> <p>Discuss real-world examples of operations of decimals.</p> | <p>MA.4.NF.B.3</p> <p>MA.4.NF.B.4</p> <p>MA.3.NF.A.1</p> <p>MA.3.NF.A.2</p> |

MA.4.NF.B.3

Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.

MA.3.NF.A.1

Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is divided into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

MA.3.NF.A.2

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | |
|--------------|--|
| MA.3.NF.A.2a | Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. |
| MA.4.NF.B.4 | Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. |
| MA.5.NF.B.5 | Interpret multiplication as scaling (resizing), by: |
| MA.3.NF.A.2b | Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line. |
| MA.3.NF.A.3a | Understand two fractions as equivalent (equal) if they are the same size, or the same position on a number line. |
| MA.5.NF.B.6 | Solve real world problems involving multiplication of fractions and mixed numbers, e.g., using visual fraction models or equations to represent the problem. |
| MA.5.NF.B.7 | Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. |
| MA.3.NF.A.3b | Recognize and generate simple equivalent fractions (e.g., $1/2 = 2/4$, $4/6 = 2/3$). Explain why the fractions are equivalent, e.g., by using a visual fraction model. |
| MA.3.NF.A.3c | Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. |
| MA.4.NF.C.5 | Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. |
| MA.4.NF.C.6 | Use decimal notation for fractions with denominators 10 or 100. |
| MA.4.NF.C.7 | Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model. |

Summative Assessment and/or Summative Criteria

- Chapter Tests
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Projects
- Portfolio

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed.
- Design lessons using UDL principles
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy.

9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 3: Problem Solving

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **2nd Marking Period**
Length: **4 Weeks**
Status: **Published**

Summary of Unit

Students will follow step-by-step procedures in order to solve for an unknown.
Students will use problem solving skills in mathematics to solve real life problems.

Enduring Understanding

By the end of this unit students will know:

- Write and Interpret Numerical Expressions
- Write and Interpret Algebraic Expressions
- Solving Equations using the 4 operations

Essential Questions

- What methods can you use to solve for an unknown?
- Why is solving for an unknown important?
- How will I use this in real life?

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments
- Observations
- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLS |
|------------------------------|-----------------|--|---|--|
| Numerical Expressions | 5 Days | <p>Students will solve equations using mental math.</p> <p>Students will solve and write addition and subtraction equations.</p> | <p>Define expression. Create a list of keywords that indicate operations.</p> <p>Define order of operations. Demonstrate how to find the value of an unknown within an expression using mental math.</p> <p>Define unknown and variable.</p> <p>Discuss the definition of evaluate. Model how to evaluate</p> | <p>MA.1.OA.A.1 MA.1.OA.A.2 MA.6.EE.A.1 MA.6.EE.A.2</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|--------|---|---|---|
| | | | expressions using mental math. | |
| Write and Interpret Algebraic Expressions | 5 Days | Students will evaluate algebraic expressions. | Define unknown and variable. Discuss the definition of evaluate. Model how to evaluate expressions using mental math. | MA.6.EE.A.1 MA.6.EE.A.2 MA.6.EE.A.3 MA.6.EE.A.4 |
| Solving Equations using Addition and Subtraction | 5 Days | Students will solve equations using mental math. Students will solve and write addition and subtraction equations. | Define equation and inverse operations. Have students identify the unknown and discuss how to isolate each unknown using inverse operations. | MA.7.EE.B.3 MA.7.EE.B.4 MA.6.EE.B.5 MA.6.EE.B.6 MA.6.EE.B.7 |
| Solving Equations using Multiplication and Division | 5 Days | Students will solve equations using mental math. Students will solve and write multiplication and division equations | Define equation and inverse operations. Have students identify the unknown and discuss how to isolate each unknown using inverse operations. | MA.7.EE.B.3 MA.7.EE.B.4 MA.6.EE.B.5 MA.6.EE.B.6 MA.6.EE.B.7 |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | |
|-------------|--|
| MA.1.OA.A.1 | Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. |
| MA.1.OA.A.2 | Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. |
| MA.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. |
| MA.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. |
| MA.6.EE.A | Apply and extend previous understandings of arithmetic to algebraic expressions. |
| MA.6.EE.A.1 | Write and evaluate numerical expressions involving whole-number exponents. |
| MA.6.EE.A.2 | Write, read, and evaluate expressions in which letters stand for numbers. |
| MA.6.EE.A.3 | Apply the properties of operations to generate equivalent expressions. |
| MA.6.EE.A.4 | Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). |
| MA.6.EE.B.5 | Understand solving an equation or inequality as a process of answering a question: what values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. |
| MA.6.EE.B.6 | Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, depending on the purpose at hand, any number in a specified set. |
| MA.6.EE.B.7 | Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers. |

Summative Assessment and/or Summative Criteria

- Chapter Tests
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Quizzes
- Journal Entries/Reflections/Quick-Writes

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Projects
- Portfolio

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed.
- Design lessons using UDL principles Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options. · Collaborate with after-school programs or clubs to extend learning opportunities

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy. 9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 4: Time Management

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **2nd Marking Period**
Length: **4 Weeks**
Status: **Published**

Summary of Unit

Students will be able to define vocabulary associate with telling time and learn that time is measured and can be quantified using unit amounts (seconds, minutes, and hours). Students will also be able to tell time using digital and analog clocks, add and subtract time, and create timelines (daily, weekly, monthly, yearly, etc.).

Enduring Understanding

By the end of this unit students will know:

- Time Vocabulary
- Telling Time Using a Digital Clock
- Telling Time Using an Analog Clock
- Elapsed and Estimated Time
- Timelines and Scheduling

Essential Questions

- How can length of time be measured?

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Why is telling important to everyday life?

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments
- Observations
- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLS |
|------------------------|-----------------|--|---|---------------------------------------|
| Time Vocabulary | 3 Days | <p>Students will define digital clock, analog clock, hour hand, minute hand, hour, minute, quarter hour, and half hour.</p> <p>Students will discuss different times of day including morning, afternoon, evening and night.</p> | <p>Provide students with definitions of vocabulary.</p> <p>Use manipulatives to demonstrate vocabulary terms.</p> <p>Discuss daily activities and categorize events according to the time of day they take place.</p> | <p>MA.1.MD.B.3</p> <p>MA.2.MD.C.7</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|-----------------------------------|--------|--|--|----------------------------|
| | | Students will define A.M. and P.M. | | |
| Digital Time Telling | 3 Days | Students will tell time to the nearest minute using digital clocks. | Demonstrate how to find time to the nearest minute. Students will identify the hour and minute on the digital clock. Students will practice telling time on a digital clock to the nearest minute. | MA.1.MD.B.3 MA.2.MD.C.7 |
| Analog Time Telling | 3 Days | Students will tell time to the nearest minute using analog clocks. | Demonstrate how to find time to the nearest minute. Demonstrate how the hands move. Students will practice telling time on an analog clock to the nearest minute. | MA.1.MD.B.3 MA.2.MD.C.7 |
| Elapsed and Estimated Time | 5 Days | Students will find elapsed time in intervals of minutes. Students will estimate time. | Demonstrate how to find elapsed time using addition and subtraction. Have students practice counting hours and minutes. Pose various scenarios with | MA.1.MD.B.3 MA.2.MD.C.7 |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|--|--|--|--|
| | | | <p>start and end times and have students calculate the elapsed time.</p> <p>Discuss the average amount of time it should take to perform daily tasks.</p> <p>Have use a stopwatch to time daily tasks.</p> | |
|--|--|--|--|--|

MA.2.MD.C.7

Tell and write time from analog and digital clocks to the near and p.m.

MA.1.MD.B.3

Tell and write time in hours and half-hours using analog and

Summative Assessment and/or Summative Criteria

- Chapter Tests
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Projects
- Portfolio

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed. • Design lessons using UDL principles
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy. 9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 5: Measuring

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **3rd Marking Period**
Length: **4 Weeks**
Status: **Published**

Summary of Unit

Students will be able to find, identify, estimate, compare, and convert various units of measure. Students will use these units of measure to find length, area, and perimeter and solve real world problems. Students will learn that attributes of capacity, mass, and weight are measurable and applicable to their daily lives.

Enduring Understanding

By the end of this unit students will know:

- Units of Measure
- Comparing, Adding, and Subtracting Units of Measure
- Area and Perimeter
- Volume and Mass

Essential Questions

- Why is it important to know how to convert units of measure?
- How can you estimate types of measure?
- How are units of measure applicable to the real world?

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Observations
- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLs |
|--|----------|--|--|--|
| Units of Measure | 10 Days | <p>Students will measure the length of objects using nonstandard units.</p> <p>Students will estimate and measure using an inch ruler.</p> <p>Students will estimate and measure using feet and yards.</p> <p>Students will estimate and measure using a centimeter ruler and meter stick.</p> | <p>Demonstrate how to measure items using reference objects instead of standard units of measure.</p> <p>Demonstrate how to measure classroom objects using an inch ruler.</p> <p>Demonstrate how to measure classroom objects using feet and yards.</p> <p>Demonstrate how to measure classroom objects using a centimeter ruler and meter stick.</p> | <p>MA.1.MD.A.1</p> <p>MA.1.MD.A.2</p> <p>MA.2.MD.A.3</p> <p>MA.2.MD.A.4</p> <p>MA.K.MD.A.1</p> <p>MA.K.MD.A.2</p> <p>MA.4.MD.A.1</p> |
| Comparing, Adding, and Subtracting Units of Measure | 5 Days | <p>Students will measure objects using various units of measure and compare their lengths and units.</p> | <p>Discuss when to use which type of unit of measure.</p> <p>Provide students with unit conversions and have students convert units.</p> | <p>MA.1.MD.A.1</p> <p>MA.1.MD.A.2</p> <p>MA.5.MD.A.1</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|---------------------------|--------|---|--|--|
| | | <p>Students will convert units.</p> <p>Students will add distances to find total length.</p> <p>Students will subtract measurements to find the difference of lengths.</p> | <p>Have students find the total length of multiple objects.</p> <p>Have students find the difference in sizes between objects.</p> | |
| Area and Perimeter | 5 Days | <p>Students will use standard units to find the area and perimeter of a shape.</p> <p>Students will select appropriate tools and units for finding the area and perimeter.</p> <p>Students will solve real world problems involving area and perimeter.</p> | <p>Define area and perimeter.</p> <p>Demonstrate how to find the area of rectangles using two methods.</p> <p>Present students with various sized objects and discuss the appropriate measuring tool to use.</p> <p>Have students find the area and perimeter of classroom objects.</p> <p>Present students with daily applications of area and perimeter problems</p> | <p>MA.3.MD.C.5</p> <p>MA.3.MD.C.6</p> <p>MA.3.MD.C.7</p> <p>MA.3.MD.D.8</p> <p>MA.4.MD.A.3</p> |
| Volume and Mass | 5 Days | <p>Students will measure and estimate in</p> | <p>Display various container and have students</p> | <p>MA.3.MD.A.1</p> <p>MA.3.MD.A.2</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|--|--|---|--|
| | | <p>cups, pints, quarts, and gallons using appropriate tools.</p> <p>Students will measure and estimate in ounces, pounds, and tons using appropriate tools</p> | <p>discuss everyday items that fit in each container.</p> <p>Present students with various measuring tools and a table to classify the various forms of measure for volume and mass.</p> <p>Display everyday items and ask students to discuss which measurement should be used.</p> <p>Have students estimate various volumes and masses.</p> <p>Discuss reasonable answers versus irrational suggestions.</p> | |
|--|--|--|---|--|

- MA.K.MD.A.1 Describe measurable attributes of objects, such as length; describe measurable attributes of a single object.
- MA.2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, meters, and kilometers.
- MA.K.MD.A.2 Directly compare two objects with a measurable attribute in common, e.g., length, area, weight, and describe the results as “more of,” “less of,” or “same as.”
- MA.2.MD.A.4 Measure to determine how much longer one object is than another; express the difference in terms of a standard length unit.
- MA.1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.
- MA.1.MD.A.2 Express the length of an object as a whole number of length units, e.g., by laying multiple copies of a shorter object (the length unit) end to end; understand that the number of length units of an object is the same regardless of whether the object is measured horizontally or vertically.

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | |
|-------------|---|
| | measurement of an object is the number of same-size length units that span it with no gaps or overlaps. |
| MA.3.MD.A.1 | Tell and write time to the nearest minute and measure time intervals in minutes; solve word problems involving addition and subtraction of time intervals in minutes, representing the problem on a number line diagram. |
| MA.3.MD.A.2 | Measure and estimate liquid volumes and masses of objects using standard units (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step problems involving masses or volumes that are given in the same units, e.g., by drawings (such as a beaker with a measurement scale) to represent the problem. |
| MA.5.MD.A.1 | Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step word problems. |
| MA.4.MD.A.1 | Know relative sizes of measurement units within one system of units including kilometers (km); mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement data in a two column table. |
| MA.3.MD.C.5 | Recognize area as an attribute of plane figures and understand concepts of area measurement. |
| MA.4.MD.A.3 | Apply the area and perimeter formulas for rectangles in real world and mathematical problems. |
| MA.3.MD.C.6 | Measure areas by counting unit squares (square cm, square m, square in, square ft, or non-standard units). |
| MA.3.MD.C.7 | Relate area to the operations of multiplication and addition. |
| MA.3.MD.D.8 | Solve real world and mathematical problems involving perimeters of polygons, finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. |

Summative Assessment and/or Summative Criteria

- Chapter Tests

- Short/Extended Constructed Response Items

- Multiple-Choice Items (where multiple answer choices may be correct)

- Quizzes

- Journal Entries/Reflections/Quick-Writes

- Projects

- Portfolio

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed. • Design lessons using UDL principles
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy. 9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 6: Money

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **3rd Marking Period**
Length: **4 Weeks**
Status: **Published**

Summary of Unit

Students will be able to identify each coin/bill and its value and determine the value of mixed coins and dollar bills. Students will demonstrate money amounts using various bill/coin combinations and solve problems involving money.

Enduring Understanding

By the end of this unit students will know:

- Identifying and Counting Coins
- Counting and Writing Dollars and Cents
- Representing Amounts in Various Ways
- Operations with Money

Essential Questions

- How can a specific money amount be represented in various ways?
- Why is it important to be able to calculate change/totals?
- What is tax and how much does it add to cost?

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments
- Observations
- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLs |
|---------------------------------------|----------|---|---|--------------------------------|
| Identifying and Counting Coins | 5 Days | Students will identify the value of coins separately and in groups. Students will order and find the sum of coin. | Display and discuss attributes and values of each coin. Demonstrate order and grouping of coins from greatest to least value. Demonstrate adding coins to find a total using ordering and/or grouping and/or skip counting. | MA.2.MD.C.8 MA.4.MD.A.2 |
| Counting and Writing | 5 Days | Students will count money amounts greater than | Show a group of money using bills and coins. | MA.2.MD.C.8 MA.4.MD.A.2 |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|--------|--|---|---------------------------------------|
| Dollars and Cents | | one dollar and write the amount using a dollar sign and a decimal point. | <p>Model ordering and counting money from greatest to least value.</p> <p>Demonstrate the proper use of a dollar sign and a decimal point to represent cents.</p> <p>Model adding bills and coins to find a total using ordering and/or grouping and/ or skip counting.</p> | |
| Showing Amounts of Different Ways | 5 Days | Students will group different sets of coins and bills to show the same amount of money. | <p>Display a set of coins/bills and count its value.</p> <p>Demonstrate how a coin/bill can be replaced by other coins/bills and the value does not change.</p> <p>Have students create the same monetary values using different coins and bills.</p> | <p>MA.2.MD.C.8</p> <p>MA.4.MD.A.2</p> |
| Operations with Money | 5 Days | <p>Students will calculate the sum of money amounts with dollars and cents.</p> <p>Students will calculate</p> | Create real world situations in which students would use arithmetic operations involving money. | <p>MA.2.MD.C.8</p> <p>MA.4.MD.A.2</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|--|--|---|---|--|
| | | <p>different amounts of money using dollars and cents.</p> <p>Students will calculate the amount of money using dollars and cents.</p> <p>Students will calculate the quotient of money amounts using dollar and cents.</p> | <p>Demonstrate how to find the sum, difference, product, and quotient of money amounts.</p> | |
|--|--|---|---|--|

MA.2.MD.C.8

Solve word problems involving dollar bills, quarters, and ¢ symbols appropriately.

MA.4.MD.A.2

Use the four operations to solve word problems involving liquid volumes, masses of objects, and money, including fractions or decimals, and problems that require expressing a larger unit in terms of a smaller unit. Represent measurements such as number line diagrams that feature a measure

Summative Assessment and/or Summative Criteria

- Chapter Tests
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Projects
- Portfolio

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed. • Design lessons using UDL principles
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects,

solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy.

9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 7: Spreadsheets and Budgets

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **4th Marking Period**
Length: **3 Weeks**
Status: **Published**

Summary of Unit

Students will be able to create and amend a budget. Students will use digital tools, spreadsheets, and other math tools to manage funds - in the context of daily life and class trips and projects.

Enduring Understanding

By the end of this unit students will know:

- Writing Dollars and Cents
- Representing Amounts in Various Ways
- Operations with Money
- Managing Wants vs. Needs

Essential Questions

- Why is it important to create a budget?
- What can I do with "extra" money?
- What is a Want vs. a Need?

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments
- Observations
- Written Assessment

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLS |
|--------------------------|----------|---|---|---------------------------------------|
| What is a budget? | 5 Days | Students will record and define budget related vocabulary. Students will categorize expenses into recurring, one time, and unexpected. | Students will define budget and restate importance. Vocabulary flash cards, quizzes, and white board sorts. Students will sort examples of expenses into 3 categories. Students categorize things that can be bought into wants and needs. | PFL.9.1.8.EG WRK.9.2.12.CAP.10 |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|------------------------------|--------|--|---|---------------------------------------|
| What tools can I use? | 5 Days | Students will use at least 2 tools to perform budgeting related tasks. | Students will use excel to complete calculations. Students will use at least 1 other online resource. Students may also use paperwork, peel and sticks, etc. | PFL.9.1.8.EG WRK.9.2.12.CAP.10 |
| Creating a Budget | 5 Days | Students will create an example budget with given information. Students will create a budget using information from their own life. | Students will set up and use an excel spreadsheet to create 2 budgets. One with simulated information, and one with information from their own life. Budgets can include savings goals, timelines, bills, emergency funds, etc. | PFL.9.1.8.EG WRK.9.2.12.CAP.10 |
| | | | | |

PFL.9.1.8.EG

Economic and Government Influences

PFL.9.1.8.EG.7

Explain the effect of the economy (e.g., inflation, unemp individual and family security, and consumer decisions.

WRK.9.2.12.CAP.10

Identify strategies for reducing overall costs of postsecor assistance, loans, grants, scholarships, and student loans:

An individual’s income and benefit needs and financial p

Summative Assessment and/or Summative Criteria

- Chapter Tests
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Projects
- Portfolio

Suggested Modifications for Students with Disabilities, ML, At Risk, and Gifted Students

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed.
- Design lessons using UDL principles
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy.

9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Unit 8: Graphs and Charts

Content Area: **Mathematics**
Course(s): **Math**
Time Period: **4th Marking Period**
Length: **3 Weeks**
Status: **Published**

Summary of Unit

Students will be able to read and interpret a variety of graphs and charts. Students will create charts and graphs of their own to represent data and information.

Enduring Understanding

By the end of this unit students will know:

- X and Y axis
- Representing data in different ways
- Units and Scales

Essential Questions

- Why are graphs and charts helpful?
- What can I gain from reading and creating a graph?
- Why is data important in our lives?

Summative assessment to demonstrate mastery of the Unit.

- Performance Assessments
- Observations
- Teacher designed tests or quizzes

Formative Assessment: To be administered at the close of each topic.

- Performance Assessments
- Observations
- Written Assessment

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

Unit Plan

| Topic | Timeline | Objectives | Instructional Activities | NJSLS |
|----------------------------------|-----------------|---|--|---------------------------------------|
| Types of Graphs | 5 Days | <p>Students will record and define graphing related vocabulary.</p> <p>Students will create a list of types of graphs and charts, and what they're used for.</p> <p>Students will differentiate between different types of graphs and charts.</p> | <p>Whiteboard matching activities.</p> <p>Google slides, click and drag activities.</p> <p>Anchor charts, students' presentations.</p> <p>Show examples from student's daily life ex.</p> <p>Weather, nutrition data, videos, performance data, etc.</p> | <p>MA.2.MD.D.10</p> <p>MA.5.G.A.1</p> |
| Reading Graphs and Charts | 5 Days | <p>Students will gather data from bar graphs, line graphs, and pie charts.</p> | <p>Whiteboard matching activities.</p> <p>Google slides, click and drag activities.</p> <p>Anchor charts, students' presentations.</p> <p>Show examples from student's daily life ex.</p> <p>Weather, nutrition data, videos, performance data, etc.</p> | <p>MA.2.MD.D.10</p> <p>MA.5.G.A.1</p> |

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

| | | | | |
|-----------------------------------|--------|--|---|---------------------------------------|
| | | | Gather data from graphs and charts about high interest topics. | |
| Creating Graphs and Charts | 5 Days | Students will gather data from bar graphs, line graphs, and pie charts | <p>Whiteboard matching activities.</p> <p>Google slides, click and drag activities.</p> <p>Anchor charts, students' presentations.</p> <p>Show examples from student's daily life ex. Weather, nutrition data, videos, performance data, etc.</p> <p>Gather data from graphs and charts about high interest topics.</p> | <p>MA.2.MD.D.10</p> <p>MA.5.G.A.1</p> |
| | | | | |

MA.2.MD.D.10

Draw a picture graph and a bar graph (with single-unit up to four categories). Solve simple put together, take information presented in a bar graph.

MA.5.G.A.1

Use a pair of perpendicular number lines, called axes the intersection of the lines (the origin) arranged to given point in the plane located by using an ordered coordinates. Understand that the first number indicates the direction of one axis, and the second number in

Sayreville Public Schools
Foundations of Math 9/10 Curriculum

direction of the second axis, with the convention that the names of the two coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).

Summative Assessment and/or Summative Criteria

- Chapter Tests
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Projects
- Portfolio

Suggested Modifications for IEP/504 Eligible, ML, At Risk, and Gifted Students

- Consistent with individual plans, when appropriate.
- Below-level learners can be provided with graphic organizers, vocabulary cards, study guides, printed notes, and leveled readers. Projects can be modified or leveled as needed.
- Design lessons using UDL principles
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Provide ML students with multiple literacy strategies including websites with various language options.
- Collaborate with after-school programs or clubs to extend learning opportunities.

Suggested Technological Innovations/ Use:

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

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

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

C. Communication and Collaboration: 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.

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

E: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Cross Curricular/ 21st Century Connections:

9.2 21st Century Life and Career Skills: Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy.

9.3 21st Century Life and Career Skills: Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.