Curriculum & Instruction

SUMMIT PUBLIC SCHOOLS

Content Area: ESL
Course: Sheltered Math Strategies
Grade(s): 9-12

Course Overview

This course provides a sheltered instruction approach to mathematics for high school Multilingual Learners (Grades 9–12). Taken alongside required graduation math courses, this class strengthens both English language proficiency and foundational math skills so students can confidently access and master grade-level content. The curriculum encompasses four major units:

- **Applications in Real Life**
- **Applications in Algebraic Thinking**
- **Applications in Geometric Reasoning**
- **Applications in Financial Literacy**

Throughout the course, students cultivate foundational number sense, problem-solving skills, algebraic reasoning, spatial/geometric thinking, and practical financial literacy. Foundational skills and language competence are developed through multi-sensory approaches, scaffolded real-world exercises, authentic tasks (such as recipe adjustments, bake sales, building projects, and financial forecasts), and collaborative learning.

New Jersey State Learning Standards

Summit Public Schools curriculum aligns with the New Jersey Student Learning Standards.

Content Area Standards:

9.1.5.FP.3: Analyze how spending choices and habits affect goals.
9.1.8.CP.1: Compare prices and features of goods and services from different providers.
3.MD.A.1 & 4.MD.A.2: Solving real-world word problems involving time, money, volume, mass, and distance.
NJSLS.A-CED.A: Create equations and inequalities that describe numbers or relationships to solve real-world problems.
A.REI.A1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
A.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
NJSLS.HSG-MG.A.1: Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a structure or physical object).
NJSLS.HSG-MG.A.3: Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost).
NJSLS.HSG-GMD.A.1: Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

NJSLS.HSG-GMD.B.4: Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
NJSLS.HSG-CO.D.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).
NJSLS.7.RP.A.2: Recognize and represent proportional relationships between quantities.
NJSLS.7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems.
NJSLS.7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems (e.g., simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease).
NJSLS.7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems (e.g., simple interest, tax, markups and markdowns).
NJSLS.7.EE.B.3: Solve multi-step real-life problems posed with positive and negative rational numbers using mental computation and estimation strategies.

Interdisciplinary Standards:

RI.MF.9–10.6. Analyze, integrate, and evaluate multiple interpretations (e.g., charts, graphs, diagrams, videos) of a single text or text/s presented in different formats (visually, quantitatively) as well as in words in order to address a question or solve a problem.
RST.9-10.7: Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
ELD-MA.9-12.Explain.Interpretive:
Multilingual learners use language to interpret mathematical explanations by:

- Identifying the concept or entity.
- Analyzing data and owning problem-solving approaches.

ELD-MA.9-12.Explain.Expressive:
Multilingual learners use language to construct mathematical explanations that:

- Introduce a mathematical concept or entity.
- Describe data and/or the approach used to solve a problem.
- State reasoning used to generate own or alternate solutions.

ELD-MA.9-12.Argue.Interpretive:
Multilingual learners use language to interpret mathematical arguments by:

- Identifying the conjecture, claim, or problem-solving strategy.
- Evaluating the structural logic, evidence, and mathematical assumptions.

ELD-MA.9-12.Argue.Expressive:
Multilingual learners use language to construct mathematical arguments that:

- State a conjecture or claim.
- Justify a logic or approach with mathematical evidence, representation, or examples.
- Refute a counterargument or alternate approach (where applicable).

Career Readiness, Life Literacies and Key Skills Standards:

9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community.
9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).
9.1.5.PB.1: Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.
9.1.5.PB.2: Describe choices consumers have with money (e.g., save, spend, donate).
9.1.12.CFR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and quality of life in a variety of cultures.
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.
9.2.5.CAP.2: Identify how you might like to earn an income.
9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
9.2.5.CAP.7: Identify factors to consider before starting a business.
9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.
9.4.2.CT.2: Identify possible approaches and resources to execute a plan.
9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas.
9.4.8.CI.3: Examine challenges that may exist in the adoption of new ideas.
9.1.8.FP.3: Explain how self-regulation is important to managing money (e.g., delayed gratification, impulse buying, peer pressure, etc.).
9.1.8.FP.5: Determine how spending, investing, and using credit wisely contributes to financial well-being.

Computer Science and Design Thinking Standards:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.
8.1.12.AP.5: Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.

Career Ready Practices
CRP 1. Act as a responsible and contributing citizen and employee.
CRP 2. Apply appropriate academic and technical skills.
CRP 3. Attend to personal health and financial well-being.
CRP 4. Communicate clearly and effectively and with reason.
CRP 5. Consider the environmental, social and economic impacts of decisions.
CRP 6. Demonstrate creativity and innovation.
CRP 7. Employ valid and reliable research strategies.
CRP 8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP 9. Model integrity, ethical leadership and effective management.
CRP 10. Plan education and career paths aligned to personal goals.
CRP 11. Use technology to enhance productivity.
CRP 12. Work productively in teams while using cultural global competence.

New Jersey Curriculum Mandates:

This curriculum integrates lessons that address the following interdisciplinary New Jersey Curriculum Mandates:

- Diversity and Inclusion (Grades K - 12)
- Holocaust & Genocide Education (Grades K - 12)
- Amistad Act (Grades K - 12)
- Climate Change Education (Grades K - 12)
- Asian Americans and Pacific Islanders (Grades K - 12)
- History and Contributions of Individuals with Disabilities and LGBTQ persons (Grades 6 - 12 Only)

Learning Objectives

Unit 1: Applications in Real Life

- **Identify** key words relating to measurements, time, and money in real-world problems. **Communicate** about measurements, time, and money in real-world scenarios.
- **Implement** problem-solving strategies in all basic operations including decimals and fractions.
- **Explain** how to solve real-world scenarios utilizing new vocabulary relating to measurements, time, and money
- **Solve** real-world problems using knowledge of rational numbers and basic operations.

Unit 2: Applications in Algebraic Thinking

- **Identify** and **apply** steps to solve one-step, two-step, and multi-step equations.
- **Translate** a real-world scenario into one-step, two-step, and multi-step equations.
- **Sketch** graphs and visual representations of real-world scenarios.
- **Create** and **present** a visual representation of authentic data.

Unit 3: Applications in Geometric Reasoning / Spatial Reasoning

- **Identify and define** key vocabulary and terminology related to geometry and geometric thinking.
- **Examine** different shapes including triangles, circles, and quadrilaterals.
- **Calculate** perimeter, area, and circumference depending on the scenario presented.
- **Break down** and **solve** real-life scenarios that involve spatial and geometric thinking.
- **Apply** geometric thinking to **design** a buildable object in real life.

Unit 4: Applications in Financial Literacy

- **Search** and **compare** various rates, prices, and options to inform consumer choices
- **Determine** best purchasing options based on price, discounts and markups
- **Analyze** and **discuss** different real-life scenarios related to personal banking and finance
- **Devise** a future forecast involving personal and career goals as well as long-term budgeting

Units of Study

Unit 1: Applications in Real-Life (Approx. 50 Days)

- How do rational numbers affect our daily lives?
- How do I communicate about measurements, time, and money?
- What is the purpose of identifying least common denominator and least common multiples?
- How does analyzing, simplifying, and reducing fractions develop a deeper understanding of fractions?
- Why is developing an understanding of decimals important?
- How does one apply basic problem-solving skills to solve a real-world problem?

Unit 2: Applications in Algebraic Thinking (Aprox 50 Days)

- What is algebraic thinking?
- How do we build equations from real-life situations?
- How do we solve complex multi-step linear equations?
- What is the purpose of data?
- How can we represent data in a fundamental way?

Unit 3: Applications in Geometric Reasoning (Aprox. 40 Days)

- What is spatial and geometric reasoning?
- Why is spatial and geometric reasoning important?
- Why do we find the perimeter, area, and circumference of an object?
- How can we design a buildable object on paper?

Unit 4: Applications in Financial Literacy (Aprox. 40 Days)

- How can we manage our money responsibly?
- Why is understanding ratios and percentages important?
- How do you calculate gratuity?
- What is simple interest?
- How can I make informed decisions about big purchases?
- What are discounts and markups?
- How can we devise an informed future plan with rough estimates for incomes and spending?

Instructional Resources and Materials

Recommended:

- IXL Learning
- Everything You Need to Ace Math in One Big Fat Notebook: The Complete Middle School Study Guide
- Math Minute
- Khan Academy

Teacher Resources:

- Everything You Need to Ace Pre-Algebra and Algebra 1 in One Big Fat Notebook
- A Love For Special Learning

Assessment Strategies

Assessment measures a student's mastery of a course standard and learning objective. Assessment can be used for both instructional purposes and for evaluative purposes. Teachers may choose one or more of the following ideas to assess learners. They may also modify these ideas to make the assessment more responsive to students' interests and needs.

Formative:

- Math Minute Do Now
- Exit Tickets
- Classwork

Summative:

- **Unit** Assessments - Concept-Based Tasks

Benchmark:

- Pre-Assessment

Alternative:

- Unit Projects
- Individual Conferences

Suggested Strategies for Modification & Differentiation

Supports for English Language Learners

Sensory Supports:

Integration of authentic objects, physical manipulatives, visual aids, detailed diagrams, illustrative drawings, kinesthetic activities, and geometric models.

Graphic Supports:

Utilization of organizational charts, data tables, and visual number lines.

Interactive Supports:

Collaborative learning in pairs, triads, or small groups; whole-group discussions; structured cooperative tasks; and utilization of the home language.

Intervention Strategies

Accommodations:

Facilitation of verbal response options and frequent confirmation of instructional directions.

Interventions:

Employment of multi-sensory approaches, enhanced opportunities for active academic engagement, and implementation of pre-reading strategies including anticipatory guides and semantic mapping.

Modifications:

Adjustment of task expectations, differentiation of instructional materials, individualized assessment design, and modified evaluative grading criteria.

Modifications Chart

Ensuring access to precise notes; providing extended time for task completion with flexible due dates; adjusting the volume of items for completion or mastery; tailoring curriculum content to student proficiency; maintaining consistent classroom routines; partitioning tasks into manageable components; providing study organizers; requiring organized folders; color-coding essential data; simplifying complex directions; prioritizing hands-on learning and teacher modeling; offering guided instruction; pacing lessons for processing; delivering small-group support; repeating and clarifying instructions; pairing verbal cues with visuals; fostering metacognitive self-correction; allowing ample wait time; modifying testing formats and grading; announcing assessments with prep time; reading tests aloud; and implementing refocusing strategies during instruction.