Content Area

Curriculum Map
2023-2024

1st 9 Weeks Formal Assessments

1. **Unit 1 Test: Exploring Polynomial Expressions through Geometry – 18 DAYS**
   a. **Student Goal: Practice describing and classifying polynomials by number of terms and degree. They will also practice using the terms coefficient, variable, and constant term. (G.PAR.2.1, G.MM.1.1, G.MM.1.4)**
   b. **Student Goal: Explore adding and multiplying polynomials through the context of the construction of a K-12 school building. (G.MM.1.1, G.MM.1.4, G.PAR.2.1, G.PAR.2.2, G.PAR.2.3)**
   c. **Student Goal: Extend their understanding of algebraic expressions from middle school and Algebra: Concepts and Connections. Students will translate between words, symbols, tables, and area representations of algebraic expressions. (G.PAR.2.1, G.MM.1.1, G.MM.1.4)   Quiz**
   d. **Student Goal: Practice adding and subtracting polynomials in the context of perimeter for triangles and rectangles. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.PAR.2.2, G.PAR.2.3)**
   e. **Student Goal: Add and subtract polynomials in the context of the construction of an innovative classroom. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.PAR.2.2 • G.PAR.2.3)**
   f. **Student Goal: Add, subtract, and multiply polynomials within the context of a rectangular classroom plan. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.PAR.2.1, G.PAR.2.2, G.PAR.2.3)**
   g. **Student Goal: Explore algebraic polynomial expressions related to the design of an outdoor learning space for an elementary school. This design will involve the use of their knowledge of polynomial expressions to apply it to a mathematical situation. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.PAR.2.2, G.PAR.2.3)**
   h. **Student Goal: Work with a partner to design, build, test, and evaluate candy bar packaging made from existing materials that maximizes the volume and minimizes the waste. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.PAR.2.2, G.PAR.2.3)   Quiz**

STANDARDS ON Unit 1 Test

Describing and Classifying Polynomials	K-12 School Building	Interpreting Algebraic Expressions	Exploring Polynomials in Geometric Contexts	Innovative Classroom Designs	Classroom Floor Planning with Polynomials	Outdoor Learning Space	King Size Candy Bars Interdisciplinary Project
G.PAR.2.1	G.MM.1.1	G.PAR.2.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1
G.MM.1.1	G.MM.1.4	G.MM.1.1	G.MM.1.2	G.MM.1.3	G.MM.1.2	G.MM.1.2	G.MM.1.2
G.MM.1.4	G.PAR.2.1	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.3
	G.PAR.2.2		G.PAR.2.2	G.PAR.2.2	G.MM.1.4	G.MM.1.4	G.MM.1.4
	G.PAR.2.3		G.PAR.2.3	G.PAR.2.3	G.PAR.2.2	G.PAR.2.2	G.PAR.2.2
					G.PAR.2.3	G.PAR.2.3	G.PAR.2.3

2. Unit 2 Test: Geometric Foundations, Constructions, and Proofs – 15 DAYS

   a. **Student Goal: Explore undefined terms of point, line, and plane, the fundamental concepts of Geometry. Students will later use these concepts to help them create patterns and shapes, prove facts, and understand properties of those shapes. This will be part one in a two part exploration of the fundamental concepts. (G.MM.1.4, G.GSR.4.1, G.GSR.4.3)**

   b. **Student Goal: Continue their exploration of the fundamentals of Geometry using technology. Students will utilize Geogebra to recreate points, lines, and planes and critique their peers' work as they solidify their understanding of the concept to move further into exploring angles, triangles, and quadrilaterals. (G.MM.1.4, G.GSR.4.1, G.GSR.4.3)**

   c. **Student Goal: Briefly explore the history of ancient Greece and the challenges facing the geometers of the time. Students will explore ways to bisect a line segment and an angle. They will explore ways in which to use the tools to describe unique properties that the geometric constructions provide. (G.MM.1.4, G.GSR.4.3, G.GSR.4.4)   Quiz**

   d. **Student Goal: Explore the relationship among angles formed by a transversal and a system of two lines to show that two triangles or polygons are similar. In particular, they consider what happens when the two lines are parallel vs. when they are not. Students will solve angle puzzles to apply what they've learned about angle relationships. They informally learn the Triangle Sum theorem: the sum of all angle measures in any triangle is `180` degrees. (G.MM.1.2, G.MM.1.4, G.GSR.4.3, G.GSR.4.5)**

   e. **Student Goal: (G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.4.1, G.GSR.4.2, G.GSR.4.3)**

   f. **Student Goal: (G.MM.1.2, G.MM.1.4, G.GSR.4.3, G.GSR.4.5)**

   g. **Student Goal: (G.MM.1.1, G.MM.1.2, G.MM.1.4, G.GSR.4.1, G.GSR.4.3, G.GSR.4.4, G.GSR.4.5)   Quiz**

STANDARDS ON Unit 2 Test

The Fundamentals of Geometry	Using Geometry Software to Explore the Fundamentals	Challenges from Ancient Greece	Lines, Transversals, and Angles	Designing a Garden	Lunch Lines	Puzzling it Out
G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.2	G.MM.1.2	G.MM.1.2	G.MM.1.1
G.GSR.4.1	G.GSR.4.1	G.GSR.4.3	G.MM.1.4	G.MM.1.3	G.MM.1.4	G.MM.1.2
G.GSR.4.3	G.GSR.4.3	G.GSR.4.4	G.GSR.4.3	G.MM.1.4	G.GSR.4.3	G.MM.1.4
			G.GSR.4.5	G.GSR.4.1	G.GSR.4.5	G.GSR.4.1
				G.GSR.4.2		G.GSR.4.3
				G.GSR.4.3		G.GSR.4.4
						G.GSR.4.5

3. Unit 3 Test: Exploring Congruence – 17 DAYS

    a. Student Goal: Use the language of transformations to describe and investigate such patterns. (G.MM.1, G.GSR.3.3, G.GSR.3.4)

    b. Student Goal: Work to create a polygon, complete three translations and answer questions that demonstrate their understanding of translations. (G.MM.1, G.GSR.3.1, G.GSR.3.2, G.GSR.3.3)

    c. Student Goal: Work with concepts of congruency and similarity, including identifying corresponding sides and corresponding angles within and between triangles. (G.MM.1, G.GSR.3.4)

    e. Student Goal: Define congruence in terms of rigid motions. (G.MM.1, G.GSR.3.4)   Quiz

    f. Student Goal: Experiment with translations, reflections and rotations to develop definitions for each of the transformations. (G.MM.1, G.GSR.3.1, G.GSR.3.2)

    g. Student Goal: Develop and demonstrate an understanding of reflections of figures on a coordinate plane. (G.MM.1, G.GSR.3.1, G.GSR.3.2, G.GSR.3.3)

    h. Student Goal: Translate, reflect, and rotate shapes, and combine these transformations. (G.MM.1, G.GSR.3.1, G.GSR.3.2, G.GSR.3.3)

    i. Student Goal: Transform a pre-image to a given image on the screen. (G.MM.1, G.GSR.3.1, G.GSR.3.2)   Quiz

STANDARDS ON Unit 3 Test

Congruent Triangles and Tessellations	Coordinating Translations	Evaluating Conditions for Congruency	Introducing Congruence	Introductions to Translations, Reflections, and Rotations	Mirrored Mappings	Representing and Combining Transformations	Transformation Golf: Rigid Motion
G.MM.1	G.MM.1	G.MM.1	G.MM.1	G.MM.1	G.MM.1	G.MM.1	G.MM.1
G.GSR.3.3	G.GSR.3.1	G.GSR.3.4	G.GSR.3.4	G.GSR.3.1	G.GSR.3.1	G.GSR.3.1	G.GSR.3.1
G.GSR.3.4	G.GSR.3.2			G.GSR.3.2	G.GSR.3.2	G.GSR.3.2	G.GSR.3.2
	G.GSR.3.3				G.GSR.3.3	G.GSR.3.3	

4. **Unit 4 Test: Investigating Similarity – 19 DAYS**
   a. **Student Goal: Explore dilations through experimenting with "sketching machines" that allow them to adjust various parts of a drawing to see the effect on the pre-image. (G.GSR.5.1, G.MM.1.1, G.MM.1.4)**
   b. **Student Goal: Describe and execute dilations using reductions, enlargements, and scale factor. Students will also perform error analysis. (G.MM.1.1, G.MM.1.4, G.GSR.5.1, G.GSR.5.2, G.GSR.5.3)**
   c. **Student Goal: discover the relationship that exists between similar figures using the scale factors, length, ratios, and area ratios. (G.GSR.5.1, G.GSR.5.2, G.GSR.5.3, G.MM.1.1, G.MM.1.4)**
   d. **Student Goal: Use similarity criteria in triangles to solve problems (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.5.3)   Quiz**
   e. **Student Goal: Use properties of the ratio of segments of parallel lines cut by a transversal to verify relationships and solve problems. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.5.2, G.GSR.5.3)**
   f. **Student Goal: Investigate proportionality with parallel lines within triangles. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.5.1, G.GSR.5.2, G.GSR.5.3)**
   g. **Student Goal: Prove the Pythagorean Theorem using triangle similarity. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.5.1, G.GSR.5.2, G.GSR.5.3)**
   h. **Student Goal: Investigate proportionality with angle bisectors within triangles. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.5.1, G.GSR.5.2, G.GSR.5.3)**
   i. **Student Goal: Make mathematical models for similar triangles to solve an application problem. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.5.1, G.GSR.5.2, G.GSR.5.3)   Quiz**

STANDARDS ON Unit 4 Test

Sketchy Dilations (Desmos)	Executing Dilations	Similar Triangles	Shadow Math	Triangle Proportionality (Side Splitter) Theorem	Triangle Proportionality Midsegment Theorem	Proving Pythagorean Theorem Using Triangle Similarity	Triangle Angle Bisector Theorem - Geogebra	Solving Geometry Problems: Floodlights
G.GSR.5.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1
G.MM.1.1	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.2	G.MM.1.2	G.MM.1.2	G.MM.1.2
G.MM.1.4	G.GSR.5.1	G.GSR.5.1	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.3	G.MM.1.3
	G.GSR.5.2	G.GSR.5.2	G.GSR.5.3	G.GSR.5.2	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.4
	G.GSR.5.3	G.GSR.5.3		G.GSR.5.3	G.GSR.5.1	G.GSR.5.1	G.GSR.5.1	G.GSR.5.1
					G.GSR.5.2	G.GSR.5.2	G.GSR.5.2	G.GSR.5.2
					G.GSR.5.3	G.GSR.5.3	G.GSR.5.3	G.GSR.5.3

2nd 9 Weeks Formal Assessments

5. **Unit 5 Test: Right Triangle Trigonometry – 21 DAYS**
    a. **Student Goal: Produce and evaluate geometric proofs. (G.GSR.6.1, G.GSR.6.2, G.GSR.6.3, G.MM.1.1, G.MM.1.4)**
    b. **Student Goal: Understand and apply the Pythagorean Theorem to explore triangles and Pythagorean Triples. (G.GSR.6.1, G.GSR.6.2, G.GSR.6.3, G.MM.1.1, G.MM.1.4)**
    c. **Student Goal: Discover the side and angle measures of special right triangles (45°-45°-90° and 30°-60°-90°). (G.GSR.6.1, G.MM.1.1, G.MM.1.4)**
         Quiz
    d. **Student Goal: Explore and understand trigonometric ratios. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.6.1, G.GSR.6.3)**
    e. **Student Goal: Engage in the mathematical problem solving cycle to engage in applications of right triangles. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.6.3)**
    f. **Student Goal: Explore relationships between complementary angles on right triangles. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.6.1, G.GSR.6.2)**
    g. **Student Goal: Apply their understanding of sine, cosine, and tangent to solve mathematically applicable geometric problems and to model and explain real-life phenomena. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.6.1, G.GSR.6.2, G.GSR.6.3)**
    h. **Student Goal: Use sine, cosine, and tangent to solve mathematically applicable geometric problems and to model and explain real-life phenomena. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.6.1, G.GSR.6.2, G.GSR.6.3)**

STANDARDS ON Unit 5 Test

Formative Assessment Lesson: Proofs of the Pythagorean Theorem	Pythagorean Triples	Discovering Special Triangles Learning Task	Right Triangles and Trigonometry	Access Ramp	Sine, Cosine Relationships	Clyde's Construction Crew	Hypsometer
G.GSR.6.1	G.GSR.6.1	G.GSR.6.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1
G.GSR.6.2	G.GSR.6.2	G.MM.1.1	G.MM.1.3	G.MM.1.3	G.MM.1.2	G.MM.1.2	G.MM.1.2
G.GSR.6.3	G.GSR.6.3	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.3
G.MM.1.1	G.MM.1.1		G.GSR.6.1	G.GSR.6.3	G.MM.1.4	G.MM.1.4	G.MM.1.4
G.MM.1.4	G.MM.1.4		G.GSR.6.3		G.GSR.6.1	G.GSR.6.1	G.GSR.6.1
					G.GSR.6.2	G.GSR.6.2	G.GSR.6.2
						G.GSR.6.3	G.GSR.6.3

6. Unit 6 Test: Making Sense of Circles – 30 Days

    a. Student Goal: Prove all circles are similar; relationships among inscribed angles, radii, and chords; perform geometric constructions of inscribed and circumscribed circles of a triangle; properties of angles for a quadrilateral inscribed in a circle. (G.GSR.8.1, G.MM.1.1, G.MM.1.4)

    b. Student Goal: Investigate relationships among radii and tangents. (G.GSR.8.1, G.MM.1.1, G.MM.1.4)

    c. Student Goal: Develop an understanding of the relationship between inscribed angles and the intercepted arcs. (G.GSR.8.1, G.MM.1.1, G.MM.1.4)

    d. Student Goal: Explore properties of angles when a quadrilateral is inscribed in a circle. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.8.1)

    e. Student Goal: Explore tasks that focus on inscribing and circumscribing right triangles. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.8.1)

    f. Student Goal: Use relationships among tangents and/or secants segments as they form angles inside (vertex not at the center) and outside the circle. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.8.1)

    g. Student Goal: Engage in explorations to connect arc lengths with radians. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.8.2)

    h. Student Goal: Use similarity to define and find arc length; define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector; provide informal arguments for area and volume formulas. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.8.2, G.GSR.7.1)   Quiz

    i. Student Goal: Translate between a circle's equation and its geometric features. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.8.3)

    j. Student Goal: Develop the concept of radian angle measurements. Special Right Triangles (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.7.1, G.GSR.7.2)

    k. Student Goal: Determine the points on the unit circle for special right triangles. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.7.3)   Quiz

STANDARDS ON Unit 6 Test

Circles and Their Relationships Among Central Angles, Arcs, and Chords	Tangents Intersecting a Radius	Angles and Circles	Cyclic Quadrilaterals	Inscribing and Circumscribing Right Triangles	Interior and Exterior Angles in Circles	Arcs, Strings, and Radii	Arc Length and Area of a Sector	Sorting Equations of Circles	Pizza Slices	Special Right Triangles on the Coordinate Plane
G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1
G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.2	G.MM.1.2	G.MM.1.2	G.MM.1.2	G.MM.1.2	G.MM.1.2
G.GSR.8.1	G.GSR.8.1	G.GSR.8.1	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.3	G.MM.1.3	G.MM.1.3	G.MM.1.3
			G.GSR.8.1	G.GSR.8.1	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.4
					G.GSR.8.1	G.GSR.8.2	G.GSR.7.1	G.GSR.8.3	G.GSR.7.1	G.GSR.7.3
							G.GSR.8.2		G.GSR.7.2	

7. Unit 7 Test: Modeling with Equations & Measurement - 12 Days

 a. Student Goal: Maximize the volume of each solid if it is to be constructed from a single sheet of paper. This interactive exercise focuses on volume equations, measurement, and problem-solving skills to compare the volume of 3D figures constructed from similar amounts of construction materials. (G.GSR.9.1, G.MM.1.1, G.MM.1.4)

 b. Student Goal: Examine how the three-dimensional representation changes when the height and base-edge or radius length of a pyramid or cone vary. Students will also determine the area of the base and the volume of the solid. Compare the volume of a skew pyramid or cone to the volume of a right pyramid or cone. (G.GSR.9.1, G.GSR.9.2, G.MM.1.1, G.MM.1.4)

 c. Student Goal: Practice with formulas for the volume of prisms, spheres, cones, cylinders, and pyramids in this interactive. In the accompanying classroom activity, students use the interactive and then do a hands-on activity in which they estimate and calculate the volume in cubic inches of a variety of geometric objects. (G.GSR.9.2, G.MM.1.1, G.MM.1.4) Quiz

 d. Student Goal: Measure the mass and volume of a variety of objects, then place them into a beaker of liquid to see if they float or sink. Learn to predict whether objects will float or sink in water based on their mass and volume. Compare how objects float or sink in a variety of liquids, including gasoline, oil, seawater, and corn syrup. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.9.3)   Quiz

STANDARDS ON Unit 7 Test

The Largest Container - Problems Using Volume and Shape	Pyramids and Cones	Building Sculptures	Density
G.GSR.9.1	G.MM.1.1	G.GSR.9.2	G.GSR.9.3
G.MM.1.1	G.MM.1.4	G.MM.1.1	G.MM.1.1
G.MM.1.4	G.GSR.9.1	G.MM.1.4	G.MM.1.3
	G.GSR.9.2		G.MM.1.4

8. Unit 8 Test: Investigating Probability & Statistics – 20 Days

    a. **Student Goal: Calculate probability and develop probabilistic reasoning to make sense of real-life scenarios. (G.MM.1.1, G.MM.1.4, G.GSR.10.1)**

    b. **Student Goal: Explore conditional probability and frequency tables. (G.MM.1.1, G.MM.1.4, G.GSR.10.2)**

    c. **Student Goal: Use the Fundamental Counting Principle to develop the permutations formula; use the permutations formula to develop the combinations formula; identify situations as appropriate for use of permutation or combination to calculate probabilities; and use permutations and combinations in conjunction with other probability methods to calculate probability and solve problems. (G.MM.1.1, G.MM.1.4, G.GSR.10.4)   Quiz**

    d. **Student Goal: Determine the probability of winning in a game of chance; find the expected payoff for a game of chance; use expected values to compare the benefits of playing a game of chance. (G.MM.1.1, G.MM.1.4, G.GSR.10.5, G.GSR.10.8)**

    e. **Student Goal: Calculate independent and dependent events, using experimental vs. theoretical probability. (G.MM.1.1, G.MM.1.3, G.MM.1.4, G.GSR.10.6)**

    f. **Student Goal: Use examples of theoretical and experimental events to calculate probabilities of events, to include "OR" events. Students will experiment with spinners and compare the experimental probability of a particular outcome to the theoretical probability. Select the number of spinners, the number of sections on a spinner, and a favorable outcome of a spin. Then tally the number of favorable outcomes. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.10.6)**

    g. **Student Goal: Investigate different lottery situations and calculate their probability and expected values. Students will be able to identify situations as appropriate for use of a permutation or combination to calculate probabilities; calculate and interpret the expected value of a random variable; understand a probability distribution for a random variable representing payoff values in a game of chance; make decisions based on expected values. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.10.7)**

    h. **Student Goal: Analyze and summarize categorical data in two-way frequency tables to answer statistical, investigative questions and interpret probability with authentic situations. Students will understand the meaning of independent, dependent, mutually exclusive, conditional, and overlapping probability. (G.MM.1.1, G.MM.1.2, G.MM.1.3, G.MM.1.4, G.GSR.11.1, G.GSR.11.2)**

STANDARDS ON Unit 8 Test

How Odd?	The Conditions are Right	Combinations and Permutations Task	Georgia Lottery	Independent and Dependent Events Task	Theoretical and Experimental Probability	Mega Millions Learning Task	Compound Confusion
G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1	G.MM.1.1
G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.4	G.MM.1.3	G.MM.1.2	G.MM.1.2	G.MM.1.2
G.GSR.10.1	G.GSR.10.2	G.GSR.10.4	G.GSR.10.5	G.MM.1.4	G.MM.1.3	G.MM.1.3	G.MM.1.3
			G.GSR.10.8	G.GSR.10.6	G.MM.1.4	G.MM.1.4	G.MM.1.4
					G.GSR.10.6	G.GSR.10.7	G.GSR.11.1
							G.GSR.11.2