Submit comments on the draft NYS Geometry Mathematics Learning Standards

NYS Geometry Mathematics Learning Standards					
Geometry Congruence (G-CO)					
		Standard Code	Current Standard	Revised Standard Recommendation for 2018-19	Additional Information/Notes
Cluster	A. Experiment with transformations in the plane.	G.CO.A.1	1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	1. Know precise definitions of angle, circle, perpendicular lines, parallel lines, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc as these exist within a plane.	Plural "lines" because perpendicular and parallel lines come in at least pairs. Specification of the plane as this standard focuses on 2D geometry in a Euclidian plane.
		G.CO.A.2	2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	2. Represent transformations as geometric functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch). *Note: Use a variety of strategies which include transparencies and software programs.*	Including the adjective "geometric" clarifies the function. The note keeps the suggestions of other ways to represent and instruct transformations with the standards without implying a mandate.
		G.CO.A.3	3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. NYSED: Trapezoid is defined as "A quadrilateral with at least one pair of parallel sides."	3. Given a regular or irregular polygon, describe the rotations and reflections that carry it onto itself.	This standard focuses on rigid motion within a polygon, therefore regular and irregular polygons should be explored and taught. This standard should not have the limiting factor of listed quadrilaterals. The quadrilateral family definitions and properties will be clarified in later standards.

		G.CO.A.4	4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	4. Develop definitions of rotations, reflections, and translations in terms of points, angles, circles, perpendicular lines, parallel lines, and line segments.	The term point was added to define the center point of a rotation.
		G.CO.A.5	5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure. Specify a sequence of transformations that will carry a given figure onto another. *Note: Drawing tools, which could include graph paper, tracing paper and geometry software.*	The note keeps the suggestions of other ways to represent and instruct the standards without implying a mandate.

NYS Geometry Mathematics Learning Standards					
Geometry Congruence (G-CO)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	B. Understand congruence in terms of rigid motions.	**G.CO.B.6**	6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure. Given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. *Note: With rotations, the center of the transformation must be specified.*	Two separate ideas should be two sentences. The note clarifies one of the necessary elements to define rotation.
		G.CO.B.7	7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	NO CHANGE	
		G.CO.B.8	8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	NO CHANGE	

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		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	C. Prove geometric theorems.	**G.CO.C.9**	9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints. NYSED: Theorems include but are not limited to the listed theorems. Example: theorems that involve complementary or supplementary angles.	9. Prove and apply theorems about lines and angles. ***Note: Include multi-step proofs and algebraic problems built upon these concepts.*** 9a. Prove and apply theorems about relationships, specifically: i. Vertical angles. ii. Angles created by a transversal intersecting parallel lines. iii. points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	Format and readability for better accessibility to educators and any reader of these standards.
		G.CO.C.10	10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. NYSED: Theorems include but are not limited to the listed theorems. Example: an exterior angle of a triangle is equal to the sum of the two non-adjacent interior angles of the triangle.	10. Prove and apply theorems about triangles. ***Note: Include multi-step proofs and algebraic problems built upon these concepts.*** 10a. Prove and apply theorems about angle relationships, specifically: i. Interior angles sum to 180 degrees. ii. Exterior angles sum to 360 degrees. iii. The measure of an exterior angle of a triangle is equal to the sum of the measures of its two non-adjacent interior angles of the triangle. 10b. Prove and apply theorems about isosceles triangles. 10c. Prove and apply theorems about the mid-segment of a triangle (parallel to the third side and half the length).	Format and readability for better accessibility to educators and any reader of these standards.

		G.CO.C.11	11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals. NYSED: Theorems include but are not limited to the listed theorems. Example: rhombus is a parallelogram with perpendicular diagonals.	11. Prove and apply theorems about parallelograms. ***Note: Include multi-step proofs and algebraic problems built upon these concepts.*** ***Note: Based on the inclusive definition of a trapezoid (specifically a quadrilateral with at least one pair of parallel sides), a parallelogram is a trapezoid.***	Format and readability for better accessibility to educators and any reader of these standards.
				11a. Prove and apply theorems about properties which include opposite sides are congruent, opposite angles are congruent and that the diagonals bisect each other.	
				11b. Prove and apply theorems about special parallelograms and the properties that distinguish them.	

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Cluster	D. Make geometric constructions.	**G.CO.D.12**	12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. NYSED: Constructions include but are not limited to the listed constructions. Example: constructing the median of a triangle or constructing an isosceles triangle with given lengths.	12. Make formal geometric constructions while developing **fluency** with the use of construction tools. *Note: Use a variety of tools and methods for construction, which include compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.* 12a. Copy segments and angles. 12b. Bisect segments and angles. 12c. Construct perpendicular lines including through a point on or off a given line. 12d. Construct a line parallel to a given line through a point not on the line. 12e. Construct an isosceles triangle with given lengths. 12f. Construct points of concurrency of a triangle (centroid, circumcenter, and incenter).	Format and readability for better accessibility to educators and any reader of these standards. Fluency with the use of construction tools is a fluency recommendation for Geometry. Part (f) includes the triangle portion of G.C.3 since the constructions necessary for finding the centroid, circumcenter and incenter of a triangle are covered here and require the use of compound constructions.
		G.CO.D.13	13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	**NO CHANGE**	

NYS Geometry Mathematics Learning Standards					
Geometry Similarity, Right Triangles and Trigonometry (G-SRT)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	A. Understand similarity in terms of similarity transformations.	**G.SRT.A.1**	1. Verify experimentally the properties of dilations given by a center and a scale factor.	NO CHANGE	
		G.SRT.A.1a	1a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	NO CHANGE	
		G.SRT.A.1b	1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	NO CHANGE	
		G.SRT.A.2	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar. Explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. *Note: With dilations or rotations, the center of the transformation must be specified.*	First, we distinguished the two distinct ideas by replacing the semicolon with a period. Next, the note clarifies the definition of dilations and rotations.
		G.SRT.A.3	3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	NO CHANGE	

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Geometry Similarity, Right Triangles and Trigonometry (G-SRT)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	B. Prove theorems involving similarity.	**G.SRT.B.4**	4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity. NYSED: Theorems include but are not limited to the listed theorems. Example: the length of the altitude drawn from the vertex of the right angle of a right triangle to its hypotenuse is the geometric mean between the lengths of the two segments of the hypotenuse.	4. Prove and apply theorems about triangles. ***Note: Include multi-step proofs and algebraic problems built upon these concepts.***	Reorganizing the standard makes it more accessible.
				4a. Prove that a line parallel to one side of a triangle divides the other two proportionally, and conversely.	
				4b. Prove that the length of the altitude drawn from the vertex of the right angle of a right triangle to its hypotenuse is the geometric mean between the lengths of the two segments of the hypotenuse.	
				4c. Prove the Pythagorean Theorem using triangle similarity.	
		G.SRT.B.5	5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. NYSED: ASA, SAS, SSS, AAS, and Hypotenuse-Leg (HL) theorems are valid criteria for triangle congruence. AA, SAS, and SSS are valid criteria for triangle similarity.	5. Use congruence and similarity criteria for triangles with **fluency** to: a. solve problems algebraically and geometrically. b. prove relationships in geometric figures. *Note:* ASA, SAS, SSS, AAS, and Hypotenuse-Leg (HL) theorems are valid criteria for triangle congruence. AA, SAS, and SSS are valid criteria for triangle similarity.	Restructuring the format of the written standard will increase accessibility. The note is needed, but should be left as a note. Fluency with the triangle congruence and similarity criteria is a recommendation for Geometry.

NYS Geometry Mathematics Learning Standards					
Geometry Similarity, Right Triangles and Trigonometry (G-SRT)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	C. Define trigonometric ratios and solve problems involving right triangles.	**G.SRT.C.6**	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of sine, cosine and tangent ratios for acute angles.	This course should be focused on sine, cosine and tangent. When students master these, they will be prepared for work with reciprocal functions in Algebra II.
		G.SRT.C.7	7. Explain and use the relationship between the sine and cosine of complementary angles.	NO CHANGE	
		G.SRT.C.8	8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★	8. Use sine, cosine and tangent as well as the Pythagorean Theorem to solve right triangles in applied problems. ★	This course should be focused on sine, cosine and tangent. When students master these, they will be prepared for work with reciprocal functions in Algebra II.

NYS Geometry Mathematics Learning Standards					
Geometry Similarity, Right Triangles and Trigonometry (G-SRT)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	D. Apply Trigonometry to general triangles.	**G.SRT.D.9(+)**	NEW ADDITION 9. (+) Derive the formula A=1/2 ab sin (C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	9. Explore the derivation of the formula A = 1/2 ab sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side. Apply the formula A= 1/2 ab sin (C) to find the area of any triangle. **Eliminate (+)**	Including this standard in the Geometry course is consistent with the goal of achieving mastery of the trigonometric ratios sine, cosine and tangent. This is a natural progression from right triangles to all triangles. We have differentiated the standard into an assessable and non-assessable part with the utilization of the word "explore", specifically the derivation is important for understanding but not appropriate for summative assessment. However, the application is appropriate for assessment.
		G.SRT.D.10(+)	NEW ADDITION 10. (+) Prove the Law of Sines and Cosines and use them to solve problems.	10. Explore the proofs and apply the Laws of Sines* and Cosines to solve problems. ***The ambiguous case for Law of Sines (given one angle and two sides, find the other angle) is NOT addressed in this course.*** **Eliminate (+)**	Including this standard in the Geometry course is consistent with the goal of achieving mastery of the trigonometric ratios sine, cosine and tangent. This is a natural progression from right triangles to all triangles. We have differentiated the standard into an assessable and non-assessable part with the utilization of the word "explore", specifically the derivation is important for understanding but not appropriate for summative assessment. However, the application is

					appropriate for assessment.
		G.SRT.D. 11(+)	NEW ADDITION 11. (+) Understand and apply the Law of Sines and Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	11. Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in any triangle. At this level, force diagrams should not be included. ★ **Eliminate (+)**	Including this standard in the Geometry course is consistent with the goal of achieving mastery of the trigonometric ratios sine, cosine and tangent. This is a natural progression from right triangles to all triangles. We struck the examples in the original + standard as they might not be applicable to the typical cohort of students taking Geometry, but added the modeling star "bullet" to show this standard should be utilized in "real world context."

NYS Geometry Mathematics Learning Standards					
Functions Trigonometric Functions (F-TF)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	A. Extend the domain of trigonometric functions using the unit circle.	**F.TF.A.3(+)**	NEW ADDITION 3.(+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\frac{\pi}{3}, \frac{\pi}{4}$ and $\frac{\pi}{6}$ and use the unit circle to express the values of sine, cosine, and tangent for $\pi - x, \pi + x$ and $2\pi - x$ in terms of their values for x, where x is any real number.	3. Use special triangles to determine geometrically the values of sine, cosine and tangent for 30, 45 and 60 degrees. Use the special triangles with the unit circle to find the values for sine, cosine and tangent of 30, 45, 60, 120, 135 and 150 degrees. ***Note: Side lengths could be given in radical form.*** **Eliminate (+)**	Since we are including the Laws of Sines and Cosines in Geometry to include all triangles (instead of limited to right triangles), we need to address using trigonometric ratios of obtuse angles. It's also a logical introduction of the unit circle, which is built upon in Algebra II in F.TF.A.2. The angles are specified here to restrict angle measurement to degrees, and to focus on the special triangles for the introduction of the unit circle.

NYS Geometry Mathematics Learning Standards					
Geometry Circles (G-C)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	A. Understand and apply theorems about circles.	**G.C.A.1**	1. Prove that all circles are similar.	NO CHANGE	
		G.C.A.2	2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle. NYSED: Relationships include but are not limited to the listed relationships. Example: angles involving tangents and secants.	2. Identify, describe and apply geometric properties of circles. 2a. Identify, describe and apply relationships among angles and intercepted arcs, specifically: i. central ii. inscribed iii. circumscribed iv. angles and arcs formed by any combination of intersecting tangents, secants or chords. 2b. Identify, describe and apply relationships among segments, specifically: i. radii ii. chords iii. tangents iv. secants	Intentionally clarified the elements involved with angles and segments in a circle, as well as defining the relationships between angles that require the arc that's intercepted.
		G.C.A.3	3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	3. Prove properties of angles for a quadrilateral inscribed in a circle.	See revised standard G. CO.D.12 for incenter and circumcenter of triangles.
		G.C.A.4(+)	NEW ADDITION 4.(+) Construct a tangent line from a point outside a given circle to the circle.	4. Construct a tangent line from a point outside a given circle to the circle. **Eliminate (+)**	This construction ties together with other construction standards lending coherence. It should be in geometry, not considered an additional or "+" standard.

NYS Geometry Mathematics Learning Standards					
Geometry Circles (G-C)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	B. Find arc lengths and areas of sectors of circles.	**G.C.B.5**	5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	5. Using proportionality, find one of the following given two others: the central angle, arc length, radius or area of sector.	In geometry, the focus should be on the proportionality inherent to a circle, limited to degrees with the whole circle encompassing 360 degrees. Parts b,c, d define radians and build foundational knowledge that will then be immediately applied in Algebra II.

NYS Geometry Mathematics Learning Standards					
Geometry Expressing Geometric Properties with Equations (G-GPE)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	A. Translate between the geometric description and the equation of a conic section.	**G.GPE.A.1**	1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem. Complete the square to find the center and radius of a circle given by an equation.	Separate the two distinct ideas with a period rather than a semi-colon.

NYS Geometry Mathematics Learning Standards					
Geometry Expressing Geometric Properties with Equations (G-GPE)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	B. Use coordinates to prove simple geometric theorems algebraically.	**G.GPE.B.4**	4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, √3) lies on the circle centered at the origin and containing the point (0, 2).	4. On the coordinate plane algebraically prove and apply with **fluency** geometric theorems and properties. 4a. Given points and/or characteristics, prove or disprove a polygon is a specified quadrilateral or triangle based on its properties. 4b. Given a point that lies on a circle centered at the origin, prove or disprove that a specified point lies on the same circle. *Note: coordinates of points could be given in radical form.*	This language clarifies and defines the rigor that existed in this standard. The original statement was vague. Standard is a fluency recommendation for geometry.
		G.GPE.B.5	5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	5. On the coordinate plane: i) explore the proof for the relationship between slopes of parallel and perpendicular lines; ii) **fluently** determine if lines are parallel, perpendicular, or neither, based on their slopes; and iii) **fluently** apply properties of parallel and perpendicular lines to solve geometric problems.	This language clarifies and redefines the rigor that existed in this standard. We took the "e.g." out because it was limiting. Standard is a fluency recommendation for geometry.
		G.GPE.B.6	6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	NO CHANGE	
		G.GPE.B.7	7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★	7. Use coordinates with **fluency** to compute perimeters of polygons and areas of triangles and rectangles.★ ***Note: Values may be given or computed in radical form.***	With the clarifying note, the distance formula isn't necessary, and could be limiting. Standard is a fluency recommendation for geometry.

NYS Geometry Mathematics Learning Standards					
Geometry Geometric Measurement and Dimension (G-GMD)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	A. Explain volume formulas and use them to solve problems.	**G.GMD.A.1**	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. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	1. Explore informal arguments for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.	Upon discussion with the "plus standard" group, the informal limit arguments and Cavalieri's principals are part of integral calculus and not appropriate at this level. The word explore should communicate this is best as an instructional standard, and not formally assessed.
		G.GMD.A.3	3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★	NO CHANGE	

NYS Geometry Mathematics Learning Standards					
Geometry Geometric Measurement and Dimension (G-GMD)					
		Standard Code	**Current Standard**	**Revised Standard Recommendation for 2018-19**	**Additional Information/Notes**
Cluster	B. Visualize relationships between two-dimensional and three-dimensional objects.	**G.GMD.B.4**	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.	4. Identify the shapes of plane-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. ***Note: Plane sections are not limited to being parallel or perpendicular to the base.***	Clarification of cross-section is needed here as the resources available to the field (i.e. google, etc.) cloud the issue.

NYS Geometry Mathematics Learning Standards					
Geometry Modeling with Geometry (G-MG) ★					
		Standard Code	Current Standard	Revised Standard Recommendation for 2018-19	Additional Information/Notes
Cluster	A. Apply geometric concepts in modeling situations.	G.MG.A.1	1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).	1. Use geometric shapes, their measures, and their properties to describe objects.	The example doesn't inform this standard in any meaningful way.
		G.MG.A.2	2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).	2. Apply concepts of density based on area and volume in modeling situations using geometric figures.	This clarifies that this standard applies to geometric applications, and should not be assessed by unit conversion alone.
		G.MG.A.3	3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).	3. Apply geometric methods to solve design problems. *Note: Applications could include designing an object or structure to satisfy physical constraints or minimize cost, or to investigate applications of classical geometric problems like the Golden Ratio.*	Reformatting the examples that clarify this standard will minimize confusion and clarify the standard.