Geometry Unit 1: Topic 1
Updated Nov. 2021

Marking Period	Unit Title	Recommended Instructional Days
1	Foundations of Geometry	16-18

| Domain:		Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit
NJSLS Strand: *G.CO.A.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.* *G.CO.C.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 those exactly equidistant from the segment's endpoints.* *G.CO.C.10: Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180 degrees; 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.* *G.CO.C.11: Prove theorems about parallelograms. Theorems include:*	*Progress Indicator:* *Tests ● Quizzes ● Practice problems for homework ● Online textbook ● Worksheets ● IXL ● Leveled assessments*	**Essential Questions:** 1. **What are some of the fundamentals of geometry?** 2. **How are the properties of segments and angles used to determine their measures?** 3. **How are the midpoint and length of a segment on the coordinate plane determined?** 4. **How is reasoning used to prove a theorem?** **Activity Description:** ● **Measuring Segments and Angles** ● **Midpoint and Distance** ● **Writing Proofs** ● **Indirect Proof**

Opposite angles are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other and conversely, rectangles are parallelograms with congruent diagonals.
C.CO.D.12: Make formal geometric constructions with a variety of tools and methods. 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.
G.GPE.B.6: Find a point on a directed line segment between two given points that partitions the segment in a given ratio.

Example Tasks:

Task 1:

Points *F*, *G*, and *H* are collinear.
If *GH* = 16, what is *FH*?

F   G   H

$3x - 1$ $2x + 2$
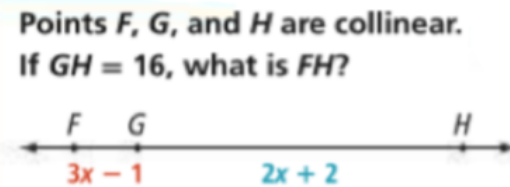
Step 1   Use the expression
for *GH* to find *x*.

$GH = 16$
$2x + 2 = 16$
$2x = 14$
$x = 7$

Step 2   Find *FH*.

$FH = FG + GH$
$= 5x + 1$
$= 5(7) + 1$
$= 36$

Task 2:
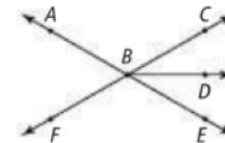
Write a two-column proof.
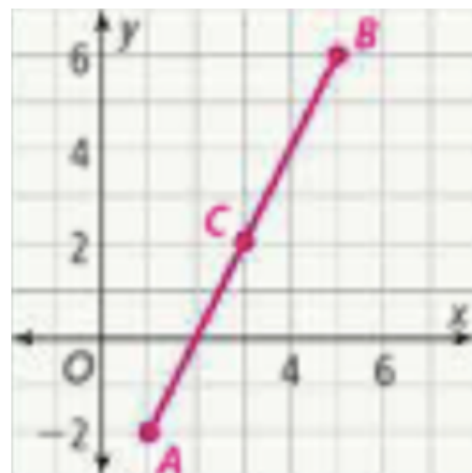
Given: $\overrightarrow{BD}$ bisects ∠CBE.

Prove: ∠ABD ≅ ∠FBD

Statements	Reasons
1) $\overrightarrow{BD}$ bisects ∠CBE	1) Given
2) ∠CBD ≅ ∠EBD	2) Def. of angle bisector
3) ∠ABC ≅ ∠FBE	3) Vert. Angles Thm.
4) ∠ABD ≅ ∠ABC + ∠CBD ∠FBD ≅ ∠FBE + ∠EBD	4) Angle Addition Postulate
5) ∠ABD ≅ ∠FBE + ∠EBD	5) Subst. Prop. of Equality
6) ∠ABD ≅ ∠FBD	6) Trans. Prop. of Equality

Task 3:

$\overline{AB}$ has an endpoint at A(1, -2) and midpoint C(3, 2). Graph $\overline{AB}$ and point C.

Interdisciplinary Connections:
TOPIC 1 PROJECT enVision STEM

Career Readiness, life Literacies and Key Skills **Content: Technology; Design a tablet (online) textbook page 4**
NJSLS#:G.CO.A.1, G.CO.D.8, G.CO.D.12, A.RE.B.4

(Next Generation Science Standards: HS-ETS1-1, HS-ETS1-2)

Spot Light On:

Sally Ride: First American woman in space.

Mathematics Practices	

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reason of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Social and Emotional Learning: *Competencies*	**Social and Emotional Learning:** *Sub-Competencies*
Self- awareness	Recognizing the importance of self-confidence in handling daily tasks and challenges.
Social Awareness	Demonstrate an awareness of the expectations for social interactions in a variety of ways.
Self- Management	
Relationship Skills	Demonstrate an understanding of the need for mutual respect when viewpoints differ.
Responsible Decision-Making	Recognize the skills needed to establish and achieve personal and educational goals.
	Utilize positive communication and social skills to interact effectively with others.
	Develop, implement, and model effective problem solving and critical thinking skills.

Assessments (Formative) *To show evidence of meeting the standard/s, students will successfully engage within:*	**Assessments (Summative)** *To show evidence of meeting the standard/s, students will successfully complete:*

Formative Assessments:	Benchmarks:
- Entry and Exit Slips - Quizzes - Self Assessments	- Chapter Tests - Projects **Summative Assessments:** - District Assessments - Midterms - Standardized Tests

Differentiated Student Access to Content: Teaching and Learning *Resources/Materials*			
Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
- Textbooks websites - Achieve the core - Khan Academy - Desmos - IXL	- Skill building worksheets - Math Manipulatives	- Dictionary for native languages - Videos in their native language.	- Leveled Assessments - Enrichment worksheets

Supplemental Resources

Technology:
- **Chromebooks, Graphing Calculators, Online math manipulatives**

Other:
- **Zoom and Google Meets, Google Classroom, Interactive Textbooks, Private Tutoring**

Differentiated Student Access to Content: Recommended *Strategies & Techniques*			
Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat	**Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.),**	**Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and**	**Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based**

	modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	modified assessment and/or rubric.	extension activities, and connect student to related

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept: Creativity and Innovation**
	Core Ideas: — With a growth mindset, failure is an important part of success
	Performance Expectation/s: — 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
	Career Readiness, Life Literacies, & Key Skills Practices
	Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.

New Jersey Legislative Statutes and Administrative Code
(place an "X" before each law/statute if/when present within the curriculum map)

| | Amistad Law: *N.J.S.A. 18A 52:16A-88* | | Holocaust Law: *N.J.S.A. 18A:35-28* | X | LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35* | | Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a* | | Standards in Action: *Climate Change* |