Mathematics Curriculum Guide

Plane Geometry

2017-18

Teaching for Understanding

- **Effective instruction begins with clarity about desired learning outcomes and about evidence that indicates learning has occurred, better known as "beginning with the end in mind." By starting with long-term results and working "backward," effective lesson planning occurs. The "backward planning" stages for a mathematics unit are:**

Stage One – Desired Results

"What are the long-term learning outcomes for my students?"

Teacher Actions:

- Review the Standards, Understandings, Essential Questions, Knowledge and Skills for the unit.
- Develop a deeper understanding of each math skill (*What is there to understand?*).
- Build connections within and between the unit's skills (*How are these understandings connected?*).

Stage Two – Evidence of Learning

"How will I know if my students understand the content?"

Teacher Actions:

- Design formative and summative assessments to inform instruction and gauge student progress towards desired results (Stage One).

Stage Three – Learning Experiences and Instruction

"What learning progression best supports my students? What learning experiences will build deep understanding and achieve my desired results?"

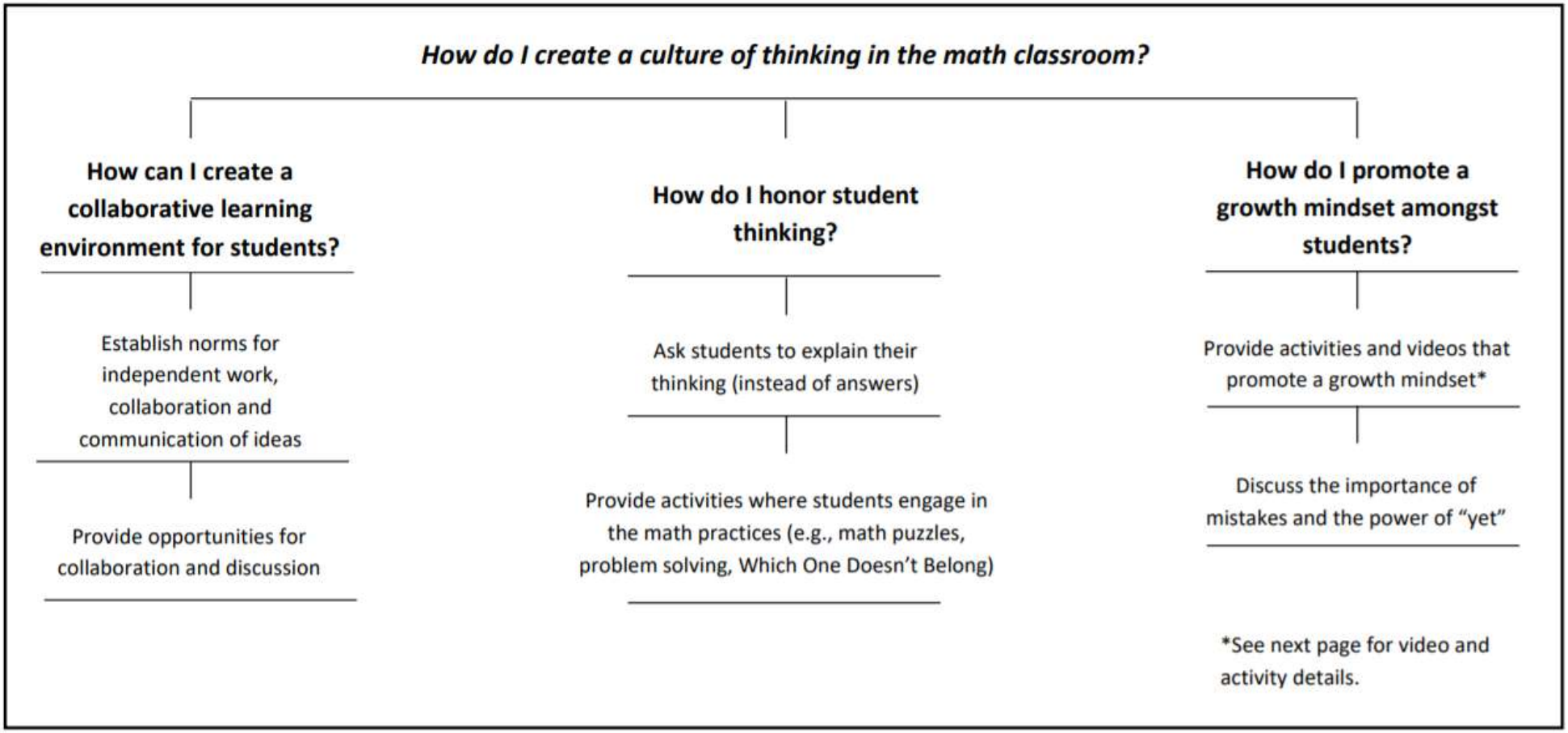
Teacher Actions:

- Determine students' understanding of prerequisite skills.
- With learning goals in mind, plan tasks that build conceptual knowledge, promote meaning making, connect mathematical concepts, and promote the mathematical practices.
- Teach for understanding.

- During the first three weeks of school, teachers will dedicate time during math instruction to create a mathematical mindset. A menu of activities can be selected by teachers to establish a healthy classroom environment, prepare students to engage in inquiry and problem-solving, and promote a positive growth mindset (see pages 3-4).

Create a Culture of Thinking

- **Creating a culture of thinking in the math classroom is a dedicated process that takes place throughout the entire school year. In order to lay the foundation, teachers will spend time during the first three days of school providing students with activities that establish an engaging learning community focused on problem solving, discourse and metacognition.**



Creating a Growth Mindset

Background

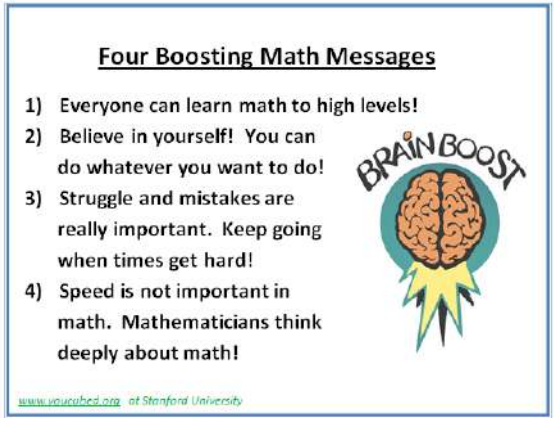
- The way a student reacts to academic challenges is directly related to whether or not the student has a growth mindset. The gap in student performance widens over time between those with a growth mindset and those with a fixed mindset.
- Teachers play a key role in developing growth mindset in students. To create a growth mindset culture, focus on the power of mistakes (download Jo Boaler's "Positive Classroom Norms"). Praise the process, not the person.
- Simply telling students to have a growth mindset can backfire. A scientific explanation about how intelligence works – that the brain can get stronger and smarter with new learning – has been demonstrated to be effective.
- Reiterating the message "just try harder" can also be problematic. A growth mindset isn't about trying harder. Students need to understand why they should put in effort and how to deploy that effort.

Secondary Videos

- Neuroplasticity (2:03) https://www.youtube.com/watch?v=ELpfYCZa87g
- The science behind Growth Mindset (3:04) https://www.youtube.com/watch?v=WtKJrB5rOKs
- Four Boosting Math Messages from Jo and Her Students (8:35) https://www.youcubed.org/students/
- John Legend: Success through effort (2:01) https://www.youtube.com/watch?v=LUtcigWSBsw

Discussion Questions

- How do you feel when you make a mistake? Why?
- How do you think other people see you when you make a mistake?
- Have you ever discovered something new from making a mistake?
- Have you ever felt proud of making a mistake?
- Has a mistake ever made you think more deeply about a problem? (start non-academic and then talk about how the lessons apply to academics)



The Power of "Yet"

- Turn a fixed mindset comment into a growth mindset statement by adding 'yet' to the end of the comment.
- Video: Sesame Street: Janelle Monae – Power of Yet (2:41) https://www.youtube.com/watch?v=XLeUvZvuvAs
- When grading student work, be it formative or summative, create a cut off point for what you would consider mastery. All work that does not meet this expectation is marked NOT YET. When returned to students, explain that they are to revise work and provide guidelines and structure for students to fix their assignments and demonstrate mastery.

Activities

- Design a poster comparing growth and fixed mindsets
- Write growth mindset hashtags and post around the classroom
- Turn the transfer goals into "I will…" statements
- Challenge students with a math puzzle and focus on using growth mindset language (I can't get the answer… yet)
- Answer a "Dear Abby" letter from a student who feels like a failure
- Give each student a piece of paper. Ask them to crumple it up and throw it at the board with the feelings they have when they make a mistake in math. Get them to retrieve the paper, uncrumple it, and color each line with different colors. Tell your students that these lines represent all the synaptic activity that happens when a mistake is made. Explain how they can learn from mistakes. Ask them to keep the paper and stick it into a notebook or folder to look at when they make a mistake. This physical reminder prompts students to use mistakes to strengthen their brain every time they open their notebook.

Topic 1: Basics of Geometry

In this unit students will understand that geometry is a mathematical system built on accepted facts, basic terms, and definitions. Students will learn that postulates and axioms are accepted statements of fact, and can be used as the basic building blocks of the logical system in geometry. Additionally, students will use number operations to find and compare lengths of segments and measures of angles, and special angle pairs to identify geometric relationships. Students will also begin to construct various types of proofs. They will apply logical reasoning to solve problems and justify their reasoning using properties, given information, definitions, postulates, and theorems. Finally, students will identify the special angle pairs formed by parallel lines and a transversal to prove theorems about parallel lines and find angle measures. The ultimate goal of this unit is for students to understand the basic building blocks of geometry and begin to use proofs to logically reason through mathematical ideas.

Common Misconceptions:

- **Measuring Segments:** When measuring the length of a segment on a number line, students might forget how to subtract a negative number. When using the Distance Formula, students are often confused about which point is the first and which point is the second. It does not matter which pint is considered the first point or the second point as long as the elements from an ordered pair are used consistently. Have students label their ordered pairs as (x_1, y_1) and (x_2, y_2).
- **Complementary and Supplementary Angles:** Students will often confuse complementary and supplementary angles, thinking that angle pairs that sum to 180° are complementary and angle pairs that sum to 90° are supplementary. One way of remembering this is to think that 90 comes before 180 and C comes before S in the alphabet.
- **Proofs:** Working with proofs is often a daunting task for many students. The number of mathematical properties, theorems, definitions, etc. can be overwhelming. Some students may benefit from working backward. Have them start with the statement they'd like to prove and identify what information is needed to get to that statement.
- **Angle Relationships:** Students may assume that the relations of corresponding angles, same-side interior angles, and alternate interior and exterior angles do not exist at all when the two intersected lines are not parallel. Students need to understand that the angle-pair relations exist when two lines are intersected by a transversal, whether the lines are parallel or not. Likewise, they need to understand that some of the angle-pair relations can be used to find angle measures only when the intersected lines are parallel.

Topic 1: Basics of Geometry

Transfer Goals

1) Demonstrate perseverance by making sense of a never-before-seen problem, developing a plan, and evaluating a strategy and solution.
2) Effectively communicate orally, in writing, and using models (e.g., concrete, representational, abstract) for a given purpose and audience.
3) Construct viable arguments and critique the reasoning of others using precise mathematical language.

Timeframe: 4 weeks/20 days
Start Date: August 18, 2017
Assessment Dates: Sept. 14-15, 2017

Standards

G-CO-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

G-CO-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

Meaning-Making

Understandings

Students will understand that…

- Geometry is built upon basic geometric principles and figures (ex: point, line, plane, etc.)
- Number operations can be used to find and compare the lengths of segments. The Ruler and Segment Addition Postulates can be used in reasoning about lengths.
- Number operations can be used to find and compare the measures of angles. The Protractor and Angle Addition Postulates can be used in reasoning about angle measures.
- Special angle pairs, such as adjacent, vertical, complementary, and supplementary angles, can be used to identify geometric relationships and to find angle measures.
- Proofs are a formalized way of demonstrating that something is true and can be written in different formats. Logical reasoning from one step to another is essential in building a proof. (G-CO-9)
- When a line intersects two or more lines, the angles formed at the intersection points create special angle pairs. (G-CO-1,G-CO-9)
- When a transversal line crosses parallel lines it creates angle pairs with specific relationships that can be either congruent or supplementary. (G-CO-9)

Essential Questions

Students will keep considering…

- What are the accepted facts, basic terms, and definitions that serve as the foundation of geometry?
- How can you determine the length of a line segment, and if two segments are congruent?
- How are degrees used to measure and classify angles?
- How can you use special angle pairs and their relationships to find angle measures?
- How can a geometric theorem or conjecture be proven?
- When a transversal line crosses parallel lines, which resulting angle pair relationships can be proven as congruent?

Acquisition

Knowledge

Students will know…

Vocabulary: point, line, plane, collinear points, coplanar, space, segment, ray, opposite rays, postulate, axiom, intersection, coordinate, distance, congruent segments, midpoint, segment bisector, angle, sides, vertex, exterior, interior, measure of an angle, acute angle, obtuse angle, right angle, straight angle, congruent angles, adjacent angles, vertical angles, complementary angles, supplementary angles, linear pair, linear pair postulate, angle bisector, reflexive property, symmetric property, transitive property, proof, two-column proof, paragraph proof, theorem, Vertical Angles Theorem, Congruent Supplements Theorem, Congruent Compliments Theorem, parallel lines, skew lines, parallel planes, transversal line, alternate interior angles, same-side/consecutive interior angles, corresponding angles, alternate exterior angles, alternate interior angles theorem, same-side/consecutive interior angles postulate, corresponding angles theorem, alternate exterior angles theorem, flow proof

- **Postulates:** Ruler, Segment Addition, Protractor, Angle Addition, Linear Pair, Same-side/consecutive Interior Angles
- **Properties:** Equality, Distributive, Congruence
- **Theorems:** Vertical Angles, Congruent Supplements, Congruent Compliments, Alternate Interior Angles, Corresponding Angles, Alternate Exterior Angles

Skills

Students will be skilled at and able to do the following…

- Name geometric figures with proper notation (ex: name a line multiple ways)
- Show and recognize segment congruence in diagrams.
- Differentiate between $\overline{AB}$ and AB as well as between $\overline{AB} \cong \overline{CD}$ and AB = CD.
- Name, measure, and identify angles when given its name and a diagram
- Identify angle pair relationships given a diagram, and find their measures.
- Write a simple two-column proof or a simple paragraph proof using given information, definitions, properties, postulates, and previously proven theorems.
- Identify angles formed by two lines and a transversal.
- Use theorems about angle relationships in parallel lines cut by a transversal to find angle measures.

Topic 1: Basics of Geometry

Transfer is a student's ability to independently apply understanding in a novel or unfamiliar situation. In mathematics, this requires that students use reasoning and strategy, not merely plug in numbers in a familiar-looking exercise, via a memorized algorithm.

Transfer goals highlight the effective uses of understanding, knowledge, and skills we seek in the long run – that is, what we want students to be able to do when they confront new challenges, both in and outside school, beyond the current lessons and unit. These goals were developed so all students can apply their learning to mathematical or real-world problems while simultaneously engaging in the Standards for Mathematical Practices. In the mathematics classroom, assessment opportunities should reflect student progress towards meeting the transfer goals.

With this in mind, the revised **PUSD transfer goals** are:

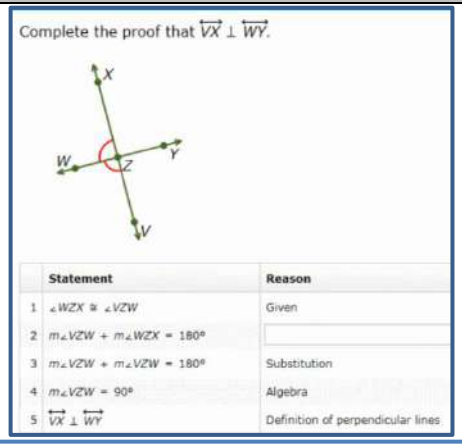
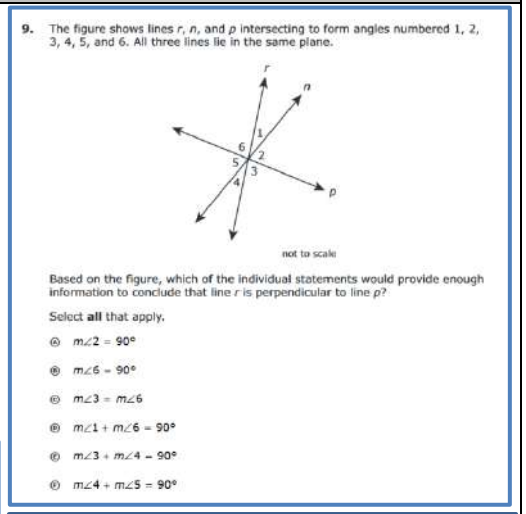
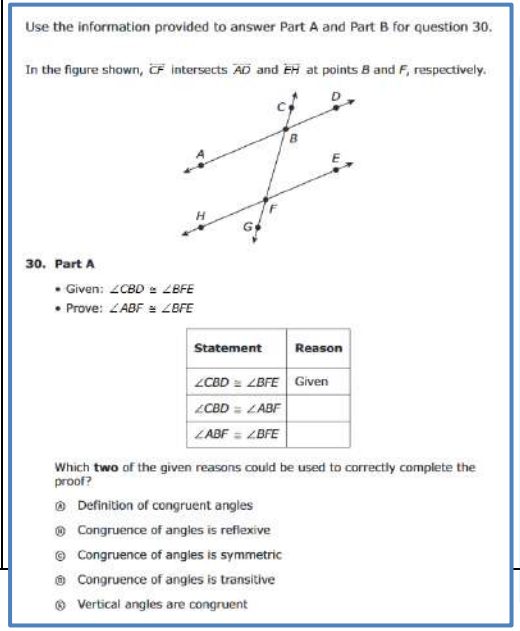
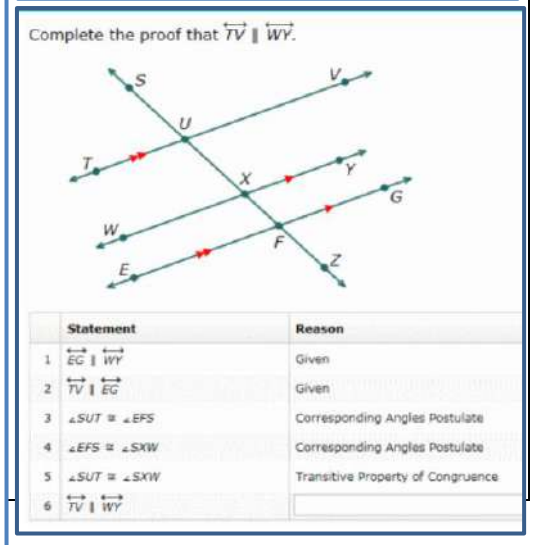
1) **Demonstrate perseverance by making sense of a never-before-seen problem, developing a plan, and evaluating a strategy and solution.**
2) **Effectively communicate orally, in writing, and by using models (e.g., concrete, representational, abstract) for a given purpose and audience.**
3) **Construct viable arguments and critique the reasoning of others using precise mathematical language.**

Multiple measures will be used to evaluate student acquisition, meaning-making and transfer. Formative and summative assessments play an important role in determining the extent to which students achieve the desired results in stage one.

Formative Assessment	Summative Assessment
Aligning Assessment to Stage One	
• What constitutes evidence of understanding for this lesson? • Through what other evidence during the lesson (e.g. response to questions, observations, journals, etc.) will students demonstrate achievement of the desired results? • How will students reflect upon, self-assess, and set goals for their future learning?	• What evidence must be collected and assessed, given the desired results defined in stage one? • What is evidence of understanding (as opposed to recall)? • Through what task(s) will students demonstrate the desired understandings?
Opportunities	
• Discussions and student presentations • Checking for understanding (using response boards) • Ticket out the door, Cornell note summary, and error analysis • *Performance Tasks* within a Unit • Teacher-created assessments/quizzes	• Unit assessments • Teacher-created quizzes and/or mid-unit assessments • *Illustrative Mathematics* tasks (https://www.illustrativemathematics.org/) • Performance tasks

Topic 1: Basics of Geometry

The following pages address how a given skill may be assessed. Assessment guidelines, examples and possible question types have been provided to assist teachers in developing formative and summative assessments that reflect the rigor of the standards. *These exact examples cannot be used for instruction or assessment, but can be modified by teachers.*

Unit Skills	SBAC Targets (DOK)	Standards	Examples
• Name geometric figures with proper notation (ex: name a line multiple ways) • Show and recognize segment congruence in diagrams. • Differentiate between $\overline{AB}$ and AB as well as between $\overline{AB} \cong \overline{CD}$ and AB = CD. • Name, measure, and identify angles when given its name and a diagram • Identify angle pair relationships given a diagram, and find their measures. • Write a simple two-column proof or a simple paragraph proof using given information, definitions, properties, postulates, and previously proven theorems. • Identify angles formed by two lines and a transversal. • Use theorems about angle relationships in parallel lines cut by a transversal to find angle measures.	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. (3,4) State logical assumptions being used. (2,3) Distinguish correct logic or reasoning form that which is flawed and – if there is a flaw in the argument – explain what it is. (2,3,4) Base arguments on concrete referents such as objects, drawings, diagrams, and actions. (2,3)	G-CO-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 G-CO-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	   

Topic 1: Basics of Geometry

Transfer Goals
1) Demonstrate perseverance by making sense of a never-before-seen problem, developing a plan, and evaluating a strategy and solution. 2) Effectively communicate orally, in writing, and using models (e.g., concrete, representational, abstract) for a given purpose and audience. 3) Construct viable arguments and critique the reasoning of others using precise mathematical language.

Essential Questions:
- What are the accepted facts, basic terms, and definitions that serve as the foundation of geometry?
- How can you determine the length of a line segment, and if two segments are congruent?
- How are degrees used to measure and classify angles?
- How can you use special angle pairs and their relationships to find angle measures?
- How can a geometric theorem or conjecture be proven?
- When a transversal line crosses parallel lines, which resulting angle pair relationships can be proven as congruent?

Standards: G-CO 1, G-CO 9

Timeframe: 4 weeks/20 days
Start Date: August 18, 2017
Assessment Dates: Sept. 14-15, 2017

Time	Lesson/ Activity	Focus Questions for Lessons	Understandings	Knowledge	Skills	Resources
2 Days (Aug. 18 & 21)	**Lesson 1-2: Points, Lines, and Planes** SMP: 1,3,4,6 (pp. 11-19) **G-CO 1**	**Focus Question:** • What are the basic terms and postulates of geometry? **Inquiry Question:** 1-2 Solve It! Pg 11	• Geometry is a mathematical system built on accepted facts, basic terms, and definitions.	**Vocabulary:** Undefined terms, point, line, plane, collinear points, coplanar, segment, ray, opposite rays, postulate, axiom, intersection	• Recognize basic geometric terms and definitions • Use correct notation to name basic geometric terms	• Emphasize proper notation (symbols) and naming of these things. • Don't worry so much about intersection of two planes being a line
2 Days (Aug. 22-23)	**Lesson 1-3: Measuring Segments** SMP: 2,3,4,6 (pp. 20-26) **G-CO 1**	**Focus Questions:** • How can you determine if two segments are congruent? • What are the differences between equal and congruent segments? **Inquiry Question:** Ch 1 CC Performance Task Pg 3	• Number operations can be used to find and compare the lengths of segments. • The Ruler and Segment Addition Postulates can be used in reasoning about lengths.	**Vocabulary:** coordinate, distance, congruent segments, midpoint, segment bisector **Concepts:** • Segment Addition Postulate	• Show and recognize segment congruence in diagrams • Differentiate between $\overline{AB}$ and AB as well as between $\overline{AB} \cong \overline{CD}$ and AB = CD • Use the definition of midpoint to set up an equation to solve for x.	• **Revisit Topic Opener – Pg 26** • make sure students understand the difference between $\overline{AB}$ and AB as well as the difference between $\overline{AB} \cong \overline{CD}$ and AB = CD • Teachers may want to show construction of a segment bisector http://www.mathopenref.com/constbisectline.html

Common Core Practices

- ☐ Instruction in the Standards for Mathematical Practices
- ☐ Use of Talk Moves
- ☐ Note-taking
- ☐ Use of Manipulatives
- ☐ Use of Technology
- ☐ Use of Real-world Scenarios
- ☐ Project-based Learning
- ☐ Thinking Maps

Time	Lesson/ Activity	Focus Questions for Lessons	Understandings	Knowledge	Skills	Additional Resources
2 Days (Aug. 24-25)	**Lesson 1-4: Measuring Angles** SMP: 1,3,6 (pp. 27-33) **G-CO 1**	**Focus Questions:** • How can you describe and measure angles? • How are angles classified? **Inquiry Question:** **1-4** Solve It! Pg 27	• Number operations can be used to find and compare the measures of angles. • The Protractor and Angle Addition Postulates can be used in reasoning about angle measures.	**Vocabulary:** angle, sides, vertex, exterior, interior, measure of an angle, acute angle, obtuse angle, right angle, straight angle, congruent angles	• Name angles three ways • Identify an angle when given its name and a diagram • Show and recognize segment congruence in diagrams • Differentiate between ∠ABC and m∠ABC as well as between ∠ABC ≅ ∠DEF and m∠ABC = m∠DEF • Measure angles using a protractor	**Revisit Topic Opener – Pg 33** Angle Addition Postulate not tested here but teachers may want to introduce it for later use
2 Days (Aug. 28 - 29)	**Lesson 1-5: Exploring Angle Pairs** SMP: 1,3,4,6 (pp. 34-40) **G-CO 1**	**Focus Questions:** • How can you use special angle pairs and their relationships to find angle measures? **Inquiry Question:** **1-5** Solve It! Pg 34	• Special angle pairs, such as adjacent, vertical, complementary, and supplementary angles, can be used to identify geometric relationships and to find angle measures.	**Vocabulary & Concepts:** adjacent angles, vertical angles, complementary angles, supplementary angles, linear pair, linear pair postulate, angle bisector	• Identify angle pair relationships given a diagram • Use angle pair relationships to find angle measures	Teachers may want to show construction of an angle bisector http://www.mathopenref.com/constbisectangle.html **Revisit Topic Opener – Pg 40 and/or Pg 69**
1 Day (Aug. 30th)	**Review Lessons 1-2, 1-3, 1-4, & 1-5 & Quiz** Teacher Generated Quiz Use this day to assess student learning.					

Common Core Practices

- ☐ Instruction in the Standards for Mathematical Practices
- ☐ Use of Talk Moves
- ☐ Note-taking
- ☐ Use of Manipulatives
- ☐ Use of Technology
- ☐ Use of Real-world Scenarios
- ☐ Project-based Learning
- ☐ Thinking Maps

Time	Lesson/ Activity	Focus Questions for Lessons	Understandings	Knowledge	Skills	Additional Resources
3 Days (Aug. 31st, Sept. 1 & 5)	**Lesson 2.5: Reasoning in Algebra and Geometry** SMP: 1,3 (pp. 113-119) **G-CO 9** **Lesson 2.6: Proving Angles Congruent** SMP: 1,3,4,6 (pp. 120-127) **G-CO 9**	**Focus Questions:** • How can you write a geometric proof? • How can a geometric theorem or conjecture be proven? **Inquiry Question:** **2-5** Solve It! Pg 113 (Alt. "Fish-Fire Story") **2-6** Solve It! Pg 120	• Logical reasoning from one step to another is essential in building a proof. • Reasons in a proof include given information, definitions, properties, postulates, and previously proven theorems.	**Vocabulary & Concepts:** reflexive property, symmetric property, transitive property, proof, two-column proof, paragraph proof, theorem, Vertical Angles Theorem, Congruent Supplements Theorem, Congruent Compliments Theorem	• Write a simple, two-column proof. • Write a simple paragraph proof.	Teachers can choose to cover other theorems in 2.6 or introduce them as needed with future proofs. Focus on algebraic properties in this section.
3 Days (Sept. 6-8)	**Lesson 3.1: Lines and Angles** SMP: 1,3,6 (pp. 140-146) **G-CO 1**, **G-CO 9** **Lesson 3.2: Properties of Parallel Lines** SMP: 1,3,4,6 (pp. 148-155) **G-CO 9**	**Focus Questions:** • How are the angles formed by parallel lines and a transversal related to each other? **Inquiry Question:** Ch 3 CC Performance Task Pg 139	• The special angle pairs formed by parallel lines and a transversal are congruent, supplementary, or both.	**Vocabulary & Concepts:** parallel lines, skew lines, parallel planes, transversal line, alternate interior angles, same-side/ consecutive interior angles, corresponding angles, alternate exterior angles, alternate interior angles theorem, same-side/consecutive interior angles postulate, corresponding angles theorem, alternate exterior angles theorem, flow proof (Pg 158)	• Identify parallel lines using "is parallel to" symbol and arrows marked in diagram. • Identify angle relationships given two lines cut by a transversal. • Use theorems about angle relationships in parallel lines cut by a transversal to find angle measures. • Complete a simple flow proof for parallel lines cut by a transversal.	**Revisit Topic Opener – Pg 146** Emphasis is on proofs with parallel lines cut by a transversal. Proof of Alt Int ∠s Theorem – Pg 150 Proof of Corr ∠s Theorem – Pg 155 #25 Revisit Topic Opener – Pg 155
1 day (Sept. 11)	**Topic 1 Performance Task (p. 154 #21 Think About a Plan)** See attached "Performance Task" for details					
2 days (Sept. 12-13)	**Review Topic 1 Concepts & Skills** Use Textbook Resources and/or Teacher Created Items					
2 days (Sept. 14-15)	**Topic 1 Assessment** (Created and provided by PUSD)					

Additional Notes About This Unit's Lessons

*Topic 1 – Basics of Geometry (21 days)

Lesson 1.2 – Points, Lines, and Plane (2 days)

Topic Opener – Pg 3 (use questions in TE)
Focus on terms such as undefined terms, point, line, plane, collinear points, coplanar, segment, ray, opposite rays, postulate, axiom, intersection.
Also emphasize proper notation (symbols) and naming of these things.
Don't worry so much about intersection of two planes being a line

Lesson 1.3 – Measuring Segments (2 days)

Focus on terms such as congruent segments, midpoint, segment bisector
Students need to understand how to show congruence in diagrams.
Also, make sure students understand the difference between $\overline{AB}$ and AB as well as the difference between $\overline{AB} \cong \overline{CD}$ and AB = CD
Teachers may want to show construction of segment bisector using http://www.mathopenref.com/constbisectline.html
Revisit Topic Opener – Pg 26

Lesson 1.4 – Measuring Angles (2 days)

Focus on terms such as angle, sides, vertex, measure of an angle, acute angle, obtuse angle, right angle, straight angle, congruent angles
Students need to be able to name angles three ways and be able to recognize an angle when given its name and a diagram.
Students need to understand how to show congruence in diagrams and use diagrams to identify congruent pieces.
Students need to understand the difference between ∠ABC and m∠ABC as well as the difference between ∠ABC ≅ ∠DEF and m∠ABC = m∠DEF
Students typically struggle with recognizing the difference between an angle and its sides. It might be helpful to have students practice measuring angles with a protractor to reinforce the idea of an angle. Using a protractor tends to be difficult for most of them and takes some practice!
Revisit Topic Opener – Pg 33

Lesson 1.5 – Exploring Angle Pairs (2 days)

Focus on terms such as adjacent angles, vertical angles, complementary angles, supplementary angles, linear pair, linear pair postulate, angle bisector
Teachers may want to show construction of angle bisector using http://www.mathopenref.com/constbisectangle.html
Revisit Topic Opener – Pg 40 and/or Pg 69

Lesson 2.5 and 2.6 – Reasoning in Algebra and Geometry (3 days)

Focus on reflexive property, symmetric property, transitive property, distributive property, proof, two-column proof, theorem, vertical angles theorem, paragraph proof
Use definitions and algebra to introduce students to the concept of proof and help them get familiar with the process of writing a proof. It can also be good to use simple two-step proofs to reinforce frequently used definitions. (Ex: Given $\overline{AB} \cong \overline{CD}$, Prove AB = CD).
Teachers can choose to cover other theorems in 2.6 or introduce them as needed with future proofs.

Notes continue on the next page.

Lesson 3-1 & 3-2 – Properties of Parallel Lines (3 days)

Topic Opener – Pg 139 (use questions in TE)

Focus on terms such as parallel lines, skew lines, parallel planes, transversal line, alternate interior angles, same-side/consecutive interior angles, corresponding angles, alternate exterior angles, alternate interior angles theorem, same-side/consecutive interior angles postulate, corresponding angles theorem, alternate exterior angles theorem, flow proof (Pg 158)

Identify parallel lines using “is parallel to” symbol and arrows marked in diagram

Revisit Topic Opener – Pg 146

Revisit Topic Opener – Pg 155