

# Geometry – Unit 3: Parallel and Perpendicular Lines

## Phoenixville Area School District

Stage 1 Desired Results		
<b>PA Core Standards:</b> CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically.  CC.2.3.HS.A.14 Apply geometric concepts to model and solve real-world problems.	<b>Transfer</b>	
	<b>TRANSFER GOALS</b> <i>Students will be able to independently use their learning to...</i> <ul style="list-style-type: none"> <li>• <b>Problem-Solving:</b> Persistently apply various problem-solving strategies and organized approaches to accurately understand and solve problems and provide evidence to support response.</li> <li>• <b>Mathematical Vocabulary:</b> Interpret mathematical vocabulary and apply proper terminology to engage in meaningful oral and written expression that communicates mathematical thinking, problem-solving methods, and rationale.</li> <li>• <b>Reasoning:</b> Demonstrate mathematical resilience and conceptual understanding through the use of vocabulary, written expression, graphical representation, and alternate strategies.</li> </ul>	
	<b>Meaning</b>	
	<b>UNDERSTANDINGS</b> <i>Students will understand that...</i> <ul style="list-style-type: none"> <li>• Mathematical ideas interconnect and build on one another to produce a coherent whole.</li> <li>• One-, two-, and three-dimensional objects are described, classified, and analyzed by their critical attributes.</li> <li>• The accurate measurement of space is determined by the ability to visualize the object/problem situation and apply an appropriate algorithm.</li> </ul>	<b>ESSENTIAL QUESTIONS</b> <i>Students will keep considering...</i> <ul style="list-style-type: none"> <li>• Have I represented the relationships between the quantities appropriately?</li> <li>• What are the mathematical attributes of objects or processes and how are they measured or calculated?</li> <li>• How are spatial relationships, including shape and dimension, used to draw, construct, model and represent real situations or solve problems?</li> <li>• What does this quantity/number/ expression/value mean? What are the ways to represent it? Is there a best way?</li> </ul>

<b>Knowledge and Skills Acquisition</b>		
	<p><b>KNOWLEDGE</b>  <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How to identify and prove angle relationships that occur with parallel lines and a transversal</li> <li>• How to use slope to analyze lines and write its equation</li> <li>• Find the distance between a point and a line</li> <li>• Find the distance between two parallel lines</li> </ul> <p><b>VOCABULARY</b></p> <ul style="list-style-type: none"> <li>• Parallel</li> <li>• Slope</li> <li>• Skew Lines</li> <li>• Transversal</li> <li>• Interior Angles</li> <li>• Exterior Angles</li> </ul>	<p><b>SKILLS</b>  <i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <li>• Identifying relationships between angles using real-world scenarios.</li> <li>• Solving for missing angles using angle relationships as demonstrated by an open-ended question.</li> <li>• Using slope to identify the relationship between lines and write the equations of lines as demonstrated through concept application problems.</li> <li>• Finding the distance between points and lines on the coordinate plane as demonstrated by an open-ended question.</li> </ul>

## Stage 2 – Evidence

Code A/M/T	Evaluative Criteria	Assessment Evidence	
Acquisition  Meaning Making  Transfer	Chooses effective strategy/strategies for solving the problem.  All representations are clear and labeled accurately.	<b>PERFORMANCE TASK(S)</b> <i>Students will demonstrate understanding (meaning making and transfer) through complex performance by...</i>  <b>City Design Project</b> Students will create a city using parallel lines, transversals, and angle relationships. <ul style="list-style-type: none"> <li>• <b>Goal:</b> Your task is to create a city with streets and buildings to the given specifications.</li> <li>• <b>Role/Audience:</b> You are a city planner creating a town to the city council's specifications.</li> <li>• <b>Situation/Product:</b> You will create a city a drawing with labels indicating the streets, buildings, and city name.</li> <li>• <b>Success Criteria:</b> Your city drawing must include a city name, multiple named parallel streets, multiple named transversal streets, and buildings labeled and created at the specified locations to satisfy angle relationships.</li> </ul>	Differentiation Considerations:
Acquisition  Meaning Making  Transfer	Chooses effective strategy/strategies for solving the problem. Explains one's reasoning efficiently using mathematics, words, or both. All representations are clear and labeled accurately. Solution is clearly identified; appropriate units are provided ( <i>if applicable</i> ).	<b>OTHER EVIDENCE</b>  <b>Exit Test</b> <ul style="list-style-type: none"> <li>• Open-Ended Response</li> <li>• Constructed Response</li> </ul>	Differentiation Considerations: