Lesson Outline for General Education

Candidate: Riley Germanis		Field Supervisor
Date: 7/25/2014	Grade: 10	Mentor Teacher

Lesson Part	Activity description/Teacher does	Students do
Title	Geometry – Early Euclidean Constructions	
Standard	CCSS.ELA-LITERACY.RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. CCSS.ELA-LITERACY.RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*.	
Central Focus (CF)	CCSS.MATH.CONTENT.HSG.CO.D.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).	
Academic Language	The verb "Cite" best describes the language function in the learning target. Cite is broken into the following explicit concepts: 1) Defines vocabulary words as relevant to Euclid's definitions. 2) Understands when and how each definition can be used. 3) Applies the appropriate definition within the context of the provided proof	
Learning Target (LT)	Student critically reads Euclidean definitions related to an equilateral triangle. Students will use Euclid's Elements Book 1, Postulate 1 to construct an equilateral triangle and can explain each step using the discussed definitions.	
Instruction Preview/review	Teacher uses Admit slips for students to have a partner discussion of the following terms: Equilateral Triangle, Line Segment, Circle, Equal Lines. Students can edit Admission Slips after discussion. Teacher engages students in a classroom discussion about their Admission Slip definitions. Clarifies definitions to align with the Euclidean definitions according to "Elements"	Prior to lesson, students were asked define a set of words. Students discuss with partner. Students assist in creating consensus definitions.
Informal Assessment	Teacher collects student Admission Slips to address previous knowledge of students. Anonymously reads some student definition of a circle, line segment and equal lines while helping students agree on a more formal definition.	Students respond to slips in classroom discussion.
Practice Activity or Support	Teacher explains Double-Entry Journaling technique for this exercise. Teacher presents Euclid's definitions, postulates common notions relevant to creating an equilateral triangle. (Definitions 1, 2, 15, 16, 20; Postulates 1, 2, 3; Common	Students actively listen and prepare their journal for activity Students use Double-Entry Journaling to compare formal

	Notion 1) (See website: http://www.greenlion.com/Eu-I-1-7.pdf) Teacher transitions to direct instruction, uses presentation slides and examples to aid student understanding. Reminds students to interpret on their own.	Euclidean definitions with their own ideas independently for 7 minutes. Students update their interpretations to align with class presentation
Informal Assessment	Teacher reviews each term and asks for student volunteers to write their responses on a poster board (which looks like a Double Entry Journal). Provides brief feedback to students with incomplete or non-rigorous interpretations.	Students raise their hand to respond and write their interpretations on class model.
Practice Activity or Support	Teacher transitions into individual activity. Uses a handout of English Interpretation of Euclid's Elements Book 1, Proposition 1 Teacher briefly explains the nomenclature for naming line segments and circles. Teacher explains that drawing is essential to understanding the proof of the proposition, the drawing will be turned in and graded for effort to connect the construction to the Learning Target. Teacher circulates and probes challenging questions about which elements of the construction follow the definitions, explain how	Students acquires appropriate material for constructions. Students ask questions as it related to the activity. Students use the Elements Book 1, Proposition 1 to draw an Equilateral Triangle. Students use drawings and explanations to describe their learning.
Closure Assessment of Student Voice	Teacher debriefs the activity with students and presents the correct answer to students. Teacher asks students to complete an exit slip. Requirements include the following elements: • What was learned about Euclid Definitions and Postulates? • How did the definitions connect to the proof drawing? • If you were to teach this, what changes would you make	Students observe correct solution asking questions. Students take 3 minutes to respond to these questions

edTPA Training Prompts (optional or used for coursework)

4. Supporting Science Development through Language
a. *Language function*: What verb appears in your learning target that represents the language function?
The verb "Cite" best describes the language function in the learning target. Cite is broken into the following explicit concepts: 4) Defines vocabulary words as relevant to Euclid's definitions. 5) Understands when and how each definition can be used. 6) Applies the appropriate definition within the context of the provided proof
b. *Language demand*: What learning activities or products will student write, speak, or do to represent the language demand and an opportunity to practice the language function?
Admit Slips: Students will use this tool to preview and bring prior knowledge into the lesson. **Exit Slips:** Students reflect on their new knowledge while providing feedback on their understanding and suggestions for future students to better learn information.
c. *Additional language demand*: How will students practice content vocabulary words shown in the learning targets?
Double Entry Journal: Allows students the opportunity to see the formal definition of the word and then provide their own definition and interpretation. Students can also draw pictures to aid their understanding of vocabulary. **Drawing to Understand:** Students use drawing tools to display their understanding of the reading and application of the vocabulary words. Students who are unable to draw the proof using the Euclidean definitions do not understand the reading tool.
d. What learning activities enable students to practice using symbols or abstract representations of information (syntax), if these are part of the lesson?
Students will read a passage from a Euclidean proof. Students will interpret the English translation of the step by step proof and will either draw each (step 1 through 5) or will cite the appropriate definition which applies to the step of the proof.
e. How is discussion (discourse) structured in activities?
Since Euclid's writing is translated from Greek to English and were written in 300 BCE, a collective, agreed upon interpretation must be developed to create meaning to the language. Students will privately discuss their own ideas, share them with the class and contribute to the overall understanding. The teacher will guide the definitions to be precise and accurate.
f. What other writing or speaking activities enable students to practice vocabulary and the verb shown in the learning target?
Students will write an exit slip to revisit definitions and their application to their learning. This provides an area of informal assessment so the teacher can determine student understanding. Students will also engage in metacognitive writing as they reflect on what they learned and how they would prefer to learn this in the future, this provides teacher feedback on how to best present information in the future.