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| **Content Area** | **Poitevient** |
| **Grade/Course** | **Math 7** |
| **Unit of Study** | **2 & 3-D Geometry** |
| **Instructional Period** |  |
| **Insert a standard(s) below (include code). HIGHLIGHT the SKILLS that students need to be able to do and UNDERLINE the CONCEPTS that students need to know.** |
| **MCC.7.G.2** Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.**MCC.7.G.5** Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure**4. Model with mathematics.** Students are able to apply the geometry concepts they know to solve problems arising in everyday life, society and the workplace. This may include applying area and surface of 2-dimensional figures to solve interior design problems or surface area and volume of 3-dimensional figures to solve architectural problems. |
| **List Behaviors****(what students should be able to do; focus on verbs)** | **List Content****(what students should know; focus on concepts)** | **Determine DOK****(align to instruction and assessment)** |
| **Understand Draw Discover Explore Determine**  | * Understand the conditions required to create geometric shapes
* Draw precise geometric figures based on given conditions.
* Discover the conditions necessary for a given set of angles or sides to make a triangle.
* Explore conditions that determine unique triangles, multiple triangles, or no triangles.
* Determine whether geometric shapes are possible given a set of conditions
 | **DOK Levels** | **DOK Ceiling** |
| **2, 3, 4** | **4** |

**Week of January 05, 2015**

**TAPS 1, 2**

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| **DOK Level****TAPS 2, 3, 4, 5** | **Possible Aligned Activities and Questions** | **Resources** **(on/offline)** |
| **2, 3, 4** | Can you construct a triangle with sides that are 13 cm, 5 cm and 6cm? | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |
| **2, 3, 4** | Is it possible to draw a triangle with a 90˚ angle and one leg that is 4 inches long and one leg that is 3 inches long? If so, draw one. Is there more than one such triangle? | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |
| **2, 3, 4** | Construct a triangle with angles that are 60 degrees. Is this a unique triangle? Why or why not? | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |
| **DOK Level****TAPS 2, 3, 4, 5** | **Possible Aligned Assessment Items/Tasks** | **Resources** **(on/offline)** |
| **2, 3, 4** | Draw a triangle where one angle is twice as large as another. Measure the third angle. What is the relationship between the three angles?  | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |
| **2, 3, 4** | Given the following angles, 0°, 10°, 15°, 30°, 35°, 65°, 70°, 75°, 80°, and 100°, find all the possible angle combinations that will form a triangle. Precisely draw all possible triangles using a protractor and ruler. | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |
| **2, 3, 4** | **Assess:** Informally monitor mastery while students complete tasks/assignments; use probing questions to confirm mastery | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |
| **2, 3, 4** | CCGPS Unit 5 Frameworks Take the Ancient Greek Challenge task | Textbook, CCGPS Framework Tasks, National Library Virtual Manipulatives, Geo Sketchpad |

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| **Standards (Primary)** | **DOK (Ceiling)** | **Integrated** |
|  | 4 | **TAPS 2, 3** |
| **KNOW/UNDERSTAND** | **Essential Question/Enduring Understanding:****EQ:**  * What are the characteristics of angles and sides that will create geometric shapes, especially triangles?

**EU:** * Use freehand, ruler, protractor and technology to draw geometric shapes with give conditions. (7.G.2)
* Construct triangles from 3 measures of angles or sides. (7.G.2)
* Given conditions, determine what and how many type(s) of triangles are possible to construct. (7.G.2)
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| **KNOWLEDGE & SKILLS****TAPS 2, 3, 5**(Key Vocabulary) |
| **Vocabulary- Tier 1*****Words using to teach Tiers 2-3***Construct, Relate, Explain, JustifyCompare, Classify, HypothesizeDraw Conclusions | **Vocabulary Tier 2*****Academic vocabulary*** *across content-areas***Analyze, Trace****Infer, Evaluate****Describe, Support****Explain** | **Vocabulary Tier 3*****Content-specific, domain-specific***Angle (∠), angle measure (𝑚∠), acute, obtuse, right, degrees (°), polygon, vertex, line segment (side AB of ΔABC) |
| **Pre-assessment to Inform Instruction**Unit 4 Pre-Test |
| **Assessment for Learning** or **Assessment of Learning**CCGPS Problem Task “Take the Ancient Greek Challenge”**TAPS 2, 3, 4** |
| **DO** |  | **Content** | **Process** | **Product** |
| **Advanced** |  Explorations should involve giving students: three side measures, three angle measures, two side measures and an included angle measure, and two angles and an included side measure to determine if a unique triangle, no triangle or an infinite set of triangles results | Students should conclude that triangles cannot be formed by any three arbitrary side or angle measures. They may realize that for a triangle to result the sum of any two side lengths must be greater than the third side length, or the sum of the three angles must equal 180 degrees. Students should be able to transfer from these explorations to reviewing measures of three side lengths or three angle measures and determining if they are from a triangle justifying their conclusions with both sketches and reasoning.  | **GaDOE Unit 5 Framework Tasks**Take the Ancient Greek Challenge |
| **Ready** | Explorations should involve giving students: three side measures, three angle measures, two side measures and an included angle measure, and two angles and an included side measure to determine if a unique triangle, no triangle or an infinite set of triangles results | Students should conclude that triangles cannot be formed by any three arbitrary side or angle measures. They may realize that for a triangle to result the sum of any two side lengths must be greater than the third side length, or the sum of the three angles must equal 180 degrees. Students should be able to transfer from these explorations to reviewing measures of three side lengths or three angle measures and determining if they are from a triangle justifying their conclusions with both sketches and reasoning.  | **GaDOE Unit 5 Framework Tasks**Take the Ancient Greek Challenge  |
| **Need Prerequisites** | Explorations should involve giving students: three side measures, three angle measures, two side measures and an included angle measure, and two angles and an included side measure to determine if a unique triangle, no triangle or an infinite set of triangles results | Provide opportunities for students to physically construct triangles with straws, sticks, or geometry apps prior to using rulers and protractors to discover and justify the side and angle conditions that will form triangles | **GaDOE Unit 5 Framework Tasks**Take the Ancient Greek Challenge  |
| **Steps to Deliver the Lesson Using WICOR** https://my.avid.org/_images/helper_mascot.pngAVID®**TAPS 2, 3, 5, 6, 8** |
| **Engage**Hook, introduction to lesson concepts | **Warm-up****Daily**: Review Inequalities |
| **Explore/Explain**(teaching content all students need to know, understand and be able to do as determined by unpacked standard)***WICOR:*** | **Monday:** Teacher Work Day**Tuesday:** Unit 4 Pre-test**Wednesday:** Textbook Chapter 7 Lesson 1 “Classify Angles”**Thursday:**  Textbook Chapter 7 Lesson 2 “Complementary & Supplementary Angles”**Friday: Quiz/**Review/Reteach |
| **Enrich/Elaborate**(differentiation of process )***WICOR:*** | **Logical Learners**1. **Materials:** protractor, analog clock

Give students an analog clock whose hands are easily moved. Have students name what times the hands of a clock form a 90° angle and explain why. Next have them use protractors and logical reasoning to answer the following questions:* + How many degrees separate one number from another? 30°
	+ How many minutes must pass for the hour hand to move 1 degree? 2 minutes
1. **Materials:** index cards

Have pairs of students make up puzzles about complementary and supplementary angles and write them on one side of an index card. On the other side, they should write the answer. Then have pairs trade with other pairs and solve.1. The **Enrich Worksheet** provides students with valuable opportunities for extending this lesson.
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| **Evaluation**(Formative assessment) | Formative Assessment, CCGPS Performance Task  |
| **Resources** | Textbook, CCGPS Frameworks, RCPS Frameworks, National Library Virtual Manipulatives, Geo Sketchpad |