**Connecticut Core Geometry Curriculum**

**Professional Development Plan**

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| **Unit 6 Three Dimensional Geometry** | | | |
| **Date** | **Location** | | |
| **Presenters** | | | |
| **Schedule for the day:**  Opening session (20 minutes)  Break (5 minutes)  Rotation of three workshops (130 minutes total)  Break (5 minutes)  Closing session (20 minutes) | | | |
| **Opening Session**  Start with an informal poll: how many participants have included some three-dimensional topics in their geometry courses? How important do participants think three-dimensional geometry is?  Talk about the move into three dimensions. Introduce the idea of Polyhedra. Key things to be seen in this unit – a performance task, use of GeoGebra to generate surfaces of revolution, and the application of Cavaliere’s Principle.  Talk about the issue of the content standards. Many in this unit are really 6th and 7th grade topics. Here will first meet the formulas informally, then prove them with more precision. | | | |
| **Workshop 1-The Mid-Unit Performance Task** | | | **Presenter** |
| **Activities**  Time: 60 minutes  Look at the Mid-Unit Performance Task – do simple experiments starting with finding the volume and surface area of a provided cone plus the construction of one more model.  Unit6midunitPerformance\_Part\_I\_v3.docx  Unit6midunitPerformance\_Part\_IIA\_v3.docx  Unit6\_MidUnitPerformanceTask\_Rubric\_v3.docx | | | **Equipment and Materials**  Card Stock  Pre-Made card stock cone for each group  Pieces of wood – flat .5 by .5 by 12 inch or 3/8 by 12 inch dowels – two for each group  Rice Krispies  Scissors  Rulers  Calculators  GeoGebra  GeoGebra Files  Protractor  Ruler  Glue, string,tape  Scale |
| **Workshop 2 Solids of Rotation** | | | **Presenter** |
| **Activities**  Time: 30 minutes  Use handouts to explore the 3-d Graph program in GeoGebra. Use a turn table to generate a solid by revolution of a 2-d shape.  Activity\_6\_4\_3\_v3.docx  Activity\_6\_4\_4\_v3.docx | | | **Equipment and Materials**  GeoGebra |
| **Workshop 3 Cavaliere’s Principle to find the surface area and volume of a sphere from the volume and surface area of the cone.** | | | **Presenter** |
| **Activities**  Time: 30 minutes  Examine the GeoGebra file that demonstrates the cross section of the cone and the sphere and show the proof for the volume and surface area of the sphere.  Activity\_6\_5\_1\_v3.docx | | | **Equipment and Materials**  GeoGebra |
| **Closing Session**  How will students respond to a more formal application of Cavaliere’s Theorem?  Will students have trouble with the notion of a turn table?  Give participants the opportunity to ask questions.  Solicit anonymous feedback from the participants. One way to do this is to give them red, yellow, and green sticky notes. On the green note they indicate something they really like or are excited about. On the yellow note they indicate a question, something they are unsure of. On the red note they express and concerns or discomfort they have with the curriculum. Before leaving have participants post these in three different locations on a wall. Presenters gather the sticky notes and summarize them so they can give feedback to the group at the next session. | | | |
| **Additional Comments**  If you need to divide the group, make two groups rather than 3. Workshop 1 takes twice as much time as the others, so plan on a schedule like this: | | | |
| **Group A**  Workshop 1 (60 minutes)  Break (5 mintues)  Workshop 2 (30 mnutes)  Break (5 minutes)  Worksop 3 (30 Minutes) | | **Group B**  Workshop 2 (30 minutes)  Break (5 minuete)  Workshop 3 (30 minutes)  Break (5 minutes)  Workshop 1 (30 minutes) | |