Name(s): WAMC Trainers

Email Address: najohnso@fwps.org

Lesson Title: Building Geodesic Domes/Area of triangles, surface area

Date: Summer 2018

Text: handouts STEM Correlation: all STEM Lesson Length: 2 class periods

|  |  |
| --- | --- |
| Big Idea (Cluster): Area of triangles, surface area of geodesic dome | |
| Mathematics K–12 Learning Standards: G-CO 8, 9,10, 12, 13 | |
| Mathematical Practice(s): 1-8 | |
| Content Objectives: to calculate the area of equilateral and isosceles triangles and the surface area of a geodesic dome | Language Objectives (ELL):  SL 9-10.1A-D  SL 9-10.4-5 |
| Vocabulary: Equilateral and isosceles triangles | Connections to Prior Learning measurement, area and surface area |
| Questions to Develop Mathematical Thinking:   * How can this be used in the real world? | Common Misconceptions:   * Surface area of a geodesic dome is the same as the surface area of half of a sphere |

Assessment (Formative and Summative):

|  |
| --- |
| * Walk around and check for understanding, class discussion (formative) * Unit test and calculations (summative) |

Materials:

|  |
| --- |
| * Paper, pencil, ruler |

Instruction Plan:

|  |
| --- |
| Introduction: discussion and explanations of equations |
| Explore: polyhedrons and platonic solids |
| When I observe students: discussing and working on calculations I believe they are understanding the concepts |
| Questions to Develop Mathematical Thinking as you observe: How does this shape stronger than a rectangle or a cube? |
| Answers: Stress is to the bottom and out. Designed from arcs |
| Summarize: class discussions, starting to build a geodesic dome. |

Career Application(s):

|  |
| --- |
| * Engineers, construction workers, architects, housing developers |

Leadership/21st Century Skills:

|  |  |  |  |
| --- | --- | --- | --- |
| 21st Century Interdisciplinary themes (Check those that apply to the above activity.)  x Global Awareness  Financial/Economic/Business/Entrepreneurial Literacy  Civic Literacy  Health/Safety Literacy x Environmental Literacy  21st Century Skills(Check those that students will demonstrate in the above activity.) | | | |
| **LEARNING AND INNOVATION**  Creativity and Innovation  x Think Creatively  x Work Creatively with Others  x Implement Innovations  Critical Thinking and Problem Solving  x Reason Effectively  Use Systems Thinking  Make Judgments and Decisions  x Solve Problems  Communication and Collaboration  x Communicate Clearly  x Collaborate with Others | **INFORMATION, MEDIA &**  **TECHNOLOGY SKILLS**  Information Literacy  x Access and Evaluate Information  x Use and manage Information  Media Literacy  Analyze Media  Create Media Products  Information, Communications and Technology (ICT Literacy)  Apply Technology Effectively | **LIFE & CAREER SKILLS**  Flexibility and Adaptability  Adapt to Change  Be Flexible  Initiative and Self-Direction  Manage Goals and Time  x Work Independently  x Be Self-Directed Learners  Social and Cross-Cultural  Interact Effectively with Others  Work Effectively in Diverse Teams | **Productivity and Accountability**  Manage Projects  Produce Results  Leadership and Responsibility  Guide and Lead Others  Be Responsible to Others |