Name(s): WAMC Trainers

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

Date: Summer 2018

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

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| 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
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Assessment (Formative and Summative):

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

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| * Paper, pencil, ruler
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Instruction Plan:

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| 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):

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| * Engineers, construction workers, architects, housing developers
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Leadership/21st Century Skills:

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| 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 Literacy21st Century Skills(Check those that students will demonstrate in the above activity.) |
| **LEARNING AND INNOVATION**Creativity and Innovationx Think Creativelyx Work Creatively with Othersx Implement InnovationsCritical Thinking and Problem Solvingx Reason Effectively[ ]  Use Systems Thinking[ ]  Make Judgments and Decisionsx Solve ProblemsCommunication and Collaborationx Communicate Clearlyx Collaborate with Others | **INFORMATION, MEDIA &** **TECHNOLOGY SKILLS**Information Literacyx Access and Evaluate Informationx Use and manage InformationMedia Literacy[ ]  Analyze Media[ ]  Create Media ProductsInformation, Communications and Technology (ICT Literacy)[ ]  Apply Technology Effectively | **LIFE & CAREER SKILLS**Flexibility and Adaptability[ ]  Adapt to Change[ ]  Be FlexibleInitiative and Self-Direction[ ]  Manage Goals and Timex Work Independentlyx Be Self-Directed LearnersSocial and Cross-Cultural[ ]  Interact Effectively with Others[ ]  Work Effectively in Diverse Teams | **Productivity and Accountability**[ ]  Manage Projects[ ]  Produce ResultsLeadership and Responsibility[ ]  Guide and Lead Others[ ]  Be Responsible to Others |