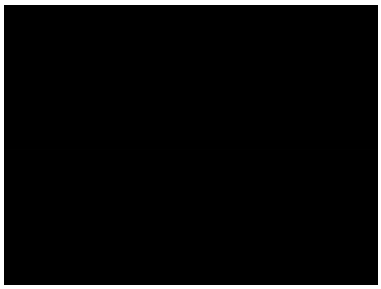
GeoDome "Igloo Project: (duration 3 weeks)

R. Buckminster Fuller, Inventor of the Geodesic Dome

The "GeoDome Home" Project

Watch Video



CA Standards 5.0 Angles and Triangles
CA Standard 12.0 Isosceles, Equilateral and Right Triangles
CA Standard 16.0 Compass/Straightedge/Protractor Constructions

The Geodesic Dome represents a brilliant demonstration of Bucky Fuller's synergetic principles. In certain circumstances, it could solve some of the housing problems in many sections of Alaska. The structure will be created in Math & Physics, while the interior aesthetics will be defined in Humanities.

By the end of this project students will be able to:

- Use will know properties of isosceles and equilateral triangles
- Use common geometric tools (compass, rulers, protractor)
- Construct equilateral and isosceles triangles
- Understand physics concepts behind geodesic domes

Scope of Work

Research R. Buckminster Fuller, Inventor of the Geodesic Dome

Gathering Data: Your research can be conducted by visiting a local architectural firm, looking for reference material at school or public library, or by accessing the Internet. Your report should be posted in Google Docs and contain the following information:

1. When was he born? Where did he live and grow up? What type of architectural training did he receive?

2. Select an example of a geodesic dome constructed by Bucky Fuller. When or where was it constructed? What are the vital statistics about its size and building materials? What special shapes and forms are used in the design?
3. Explain at least 4 geometry concepts of this design have contributed to its success.
4. Explain at least two (2) physic concepts
5. No more than 500 words

Every student is responsible for creating a model of a Geodesic Dome and completing all the required deliverables. All completed students work will be debuted and displayed during Math Night. Each student is responsible for all of the raw materials for the project. For those needing assistance, please discuss with the teacher.

Deliverables/Assignments

E-Portfolio in Google Docs
Small Scale Model
Presentation Board made on Glogster
Master Action Plan Work In Progress (WIP) Meetings & Emails
Individual Digital Portfolio

Requirements

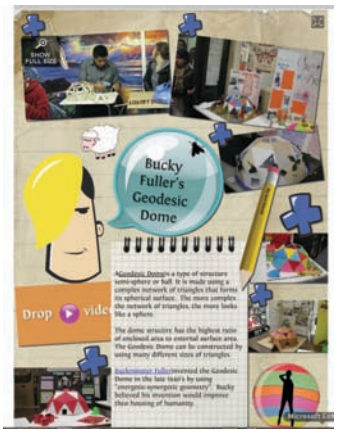
The E-Portfolio must:
-- Include all the information from the Presentation Board including image
-- Have images of the conceptual designs & Final model
-- Have working hyperlinks to Final Master Action Plans
-- Have a reflection posted in Google Docs covering "what went well, what could you do better, & what did you learn about yourself" in regards to the project itself?
-- Post copy of Master Action Plan in Google Docs

The GeoDome Home Model must:
-- Have a diameter between 1.5 ft. and 2 ft.
-- Represent the entire design (Designs on paper will not be considered.)

The Presentation Board must:
-- Be made using Glogster
-- Explain what geodesic domes are
-- Give a short history of geodesic domes and their creator Bucky Fuller
-- Explain at least 4 major Math (2) & Physics (2) Concepts covered by Geodesic Domes
-- Have an Architect Note that discusses inspiration and the highlights of the model
-- Have the Name of the model and the team members

-- Exceeding Expectations: Creatively represent the information, beyond a flat surface and text

Check Here



The Master Action Plan *must:*

-- Have ALL detailed items for the successful completion of the project
-- Reflect weekly benchmarks via the dates

The Work In Progress (WIP) Meetings & Emails must:

-- Have an up-to-date Master Action Plans posted in Google Docs
-- Establish completion of Weekly Benchmarks
-- Express via email or during private meetings regarding WIP problems with project and/or success tips.

WEEK	BENCHMARK(S)
0.5	Understanding of Proposal & Initial Master Action Plan
1	Design, Preparation, & Assigned Individual Action Items
2	Build & Test (Revise if needed)
3	Finalize

Individual Digital Portfolio

Keep and maintain all digital photos and videos in Dropbox.

Grading Criteria

The students will receive an individual grade that will be posted in Blackboard. The varying weights for the following criteria will determine their overall score.

-- Use and Explanation of Math & Physics Concepts 25 pt _____

-- Thoughtfulness & Thoroughness 25 points _____

-- Work Ethic & Behavior 25 points _____

-- Deadlines & Deliverables 25 points _____

-- Exceeding Expectations 25 points _____

Total _____

Collaboration Checklist for Individual Members

Use the following criteria to rate your performance for each skill listed in the table.

3 Points - I consistently perform at the stated level.

2 Points - I usually perform at the stated level.

1 Point - I rarely perform at the stated level.

0 Points - I do not perform the stated task.

As a team member, I	3 points	2 points	1 point	0 points
Stay on task and participate				
Support and encourage my team members				
Actively listen, ask questions and contribute to discussions				
Contribute to researching ideas				
Completed my individual assignments				

Total _____

GRAND TOTAL _____



Material Needed:

Computer
Digital camera
Flash drive
40 sheets Cardstock paper
56 cm" cardboard
Thumbtacks
Small paper clamps
Scissors
Ruler
Large compass
Glue stick
Eraser

Cited: Lesson inspired by Alfred Solis
Web 2.0 tools used: YouTube, Google Docs, Glogster, and Dropbox