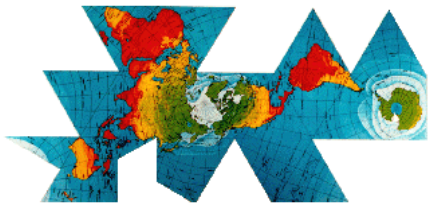
R. Buckminster Fuller

"For the first time in history it is now possible to take care of everybody at a higher standard of living than any have ever known. Only ten years agao the 'more with less' technology reached the point where this could be done. All humanity now has the option of becoming enduringly successful." - Buckminster Fuller, 1980.

R. Buckminster Fuller, known by his friends as "Bucky", has undeniably been one of the key innovators in the 20th century. He is known as a philosopher, thinker, visionary, inventor, architect, engineer, mathematician, poet, cosmologist, and more.

Buckminster Fuller was probably one of the first futurists and global thinkers. He is the one who coined the term "Spaceship Earth", and his work has inspired and paved the way for many who came after him.



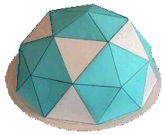
This is the Dymaxion Map of the world, developed by Fuller as the first world projection to show the continents on a flat surface without visible distortion. Furthermore, this view shows the earth as being essentially one island in one ocean.

Bucky was the person most responsible for making Synergy a common term. Much of his work was about exploring and creating synergy. He found synergy to be a basic principle of all interactive systems. He developed a subject called Synergetics, a "Geometry of Thinking".

Fuller is the inventor of the Geodesic dome, and was a pioneer in utilizing basic geometical shapes in design.

A key goal for Buckminster Fuller was the development of what he called "Comprehensive Anticipatory Design Science", which is the attempt to anticipate and solve humanity's major problems by providing "more and more life support for everybody, with less and less resources."

The Spaceship Earth Pavilion constructed by Tishman Construction for AT&T at Disney's Epcot is the best-known example of a full sphere.



Build a Dome

this web site has a great video and step by step instructions for building Geodesic domes. I gave the students a hard copy during class. (have fun)

New. Video instructions for designing and assembling this dome. <http://video.google.ca/videoplay?docid=1183983212430151077>

Geodesic domes are elegant and sophisticated structures. Lightweight and strong, they make very efficient use of materials. They are an ideal structure for use in remote areas like the Arctic. Some day we may even see dome structures on the moon or covering cities.
This site will take you, step by step, through the process of constructing a geodesic dome from paper. Information is also included for designing domes of different sizes.

This project supports the structures and mechanisms component of the science and technology curriculum in many provinces and states. Curriculum expectations often include constructing a geodesic dome or shell structure. Geodesic domes demonstrate tension and compression in a unique structure. You can construct a geodesic dome out of a variety of materials, this dome is constructed of paper. Use the design concepts outlined here to construct domes of different sizes. Try materials like Bristol board, corrugated cardboard, plywood even ice!
For students in grade 6 or grade 7 some teachers have combined this activity with art class, turning the domes into vibrant, colourful sculptures.
The math component of this project is very suitable for applied math in grade 8 or grade 9. Check your state or provincial curriculum documents under "Structures and Mechanisms" and applied math.

Construct a Geodesic Dome:

Geodesic domes, popularized by Buckminister Fuller, incorporate the structural integrity of triangles into the inherent strength of a dome or shell structure.
Following are the instructions for constructing a geodesic **dome** with a diameter of 50 cm.
If you want to build a dome of a different size, follow this link - **DOME MATH <domemath.html>**
Start by producing accurate drawings of the triangles shown below, you need 30 of the B-A-B triangles and 10 of the A-A-A triangles. These triangular building units are called **elements** . You must create these triangles accurately, the dimensions shown are very important. Use a compass and ruler . Note that the dimensions A and B, are the lengths of the sides of the triangles, the glue tabs are extra.

Triangle A-A-A is equilateral.
Triangle B-A-B is isosceles.
This is an excellent exercise in geometry! Work with ruler, compass and pencil to create precision technical drawings of each triangular element.
After drawing one of each triangle, photo copy enough to create the dome. Most types of paper are suitable.
Use two colours of paper, one colour for the A-A-A triangles, another for the B-A-B triangles. Colour coding makes construction easier and makes your dome more dramatic.
I don't want to draw these triangles. I just want to build a dome!
OK, follow the links to a printable page with a template for the elements already drawn.
Link to template for A-A-A triangle: <pdf_images/domeaaa.pdf> **(PDF File)**
Link to template for B-A-B triangle: <pdf_images/domebab.pdf> **(PDF File)**
Note: After printing the elements, measure the "A" and "B" sides to ensure they are the required lengths, not all printers print with the same resolution. You may be able to correct the size by downloading the templates (right click on the template jpg) and then rescale it with a graphics utility.
Cut out the triangles and carefully fold along the tab lines. A crisp fold is important.
Join 5 of the A-B-B triangles to create a pentagon. Do this by gluing the "B" edges together using the glue tabs. Glue sticks are fine for this project.

Make sure that the "A" sides of the triangles form the outside of the pentagon.

A completed pentagon should look look like the upper right image. Note that it is raised in the center. Create 5 more pentagons.
Create a circular base for your dome by cutting a 75 cm diameter circle from cardboard.
Draw a 50 cm diameter circle in the center of the base.
Cut a 25 cm circle out of the center of the base. This allows access to the interior of the dome.

Important: Carefully draw a series of chords around the circle. Each chord is "A" in length.
For our 50 cm dome A = 15.45 cm. Align these chords so that 10 of them fit perfectly around the circle.
These lines indicate where to place the base of each triangle.

Join two pentagons by gluing one of the "A-A-A" triangles between them.
Add another triangle as shown.

Glue this completed section to the base. The edge of each triangular element aligns with one of the chords.

Continue adding pentagons and triangles, joining them with glue.

Glue equilateral (A - A - A) triangles between pentagons on top.

Glue final pentagon on top.

Your dome is completed. To learn more about domes, follow this link to **Dome Math. <domemath.html>**
Page created at: Hila Science Camp: **<http://hilaroad.com>**
<../projects.html>

Great web site giving directions to make a Geodesic dome out of straws.

http://images.google.com/imgres?imgurl=http://anthony.liekens.net/images/dome1.jpg&imgrefurl=http://anthony.liekens.net/index.php/Misc/GeodesicDome&h=608&w=733&sz=175&tbnid=j2HA51ubz93awM:&tbnh=117&tbnw=141&prev=/images%3Fq%3Dgeodesic%2Bdome%26um%3D1&start=2&ei=9ZtqR-zqKJHugAS8lJjeDw&sig2=63rF7D9SqTuvep26_6a_-w&sa=X&oi=images&ct=image&cd=2