

BUILD A MODEL OF A C-60 MOLECULE

There are only a few kinds of molecules in the world that are made up of "pure" carbon. One is graphite, the soft, grayish material used in pencils. Another is diamond, which is an incredibly rigid crystal. A few years ago, scientists discovered another molecule of pure carbon, and called it buckminsterfullerene, or buckyball, for short.

A buckyball consists of 60 carbon atoms. The atoms are joined together in pentagonal and hexagonal shapes. The pentagons and hexagons join together to produce an overall shape that is similar to that of a soccer ball.

Buckminsterfullerene is named after the designer of the geodesic dome, Buckminster Fuller. Many buildings have been built in the shape of these domes, known for their lightness, strength, and ease of construction. Epcot Center in Walt Disney World, is one example of a geodesic dome structure.

Scientists think the physical properties of buckyball will allow it to be used in the fight against AIDS, as a superconductor, or as a lightweight, super strong armor (buckyballs have been shot at steel walls at 15,000 MPH and simply bounced off, unaffected by the impact).

PROCEDURE:

1. Cut out the 3 strips of hexagons by cutting only on the **solid** lines.
2. Crease the strips by folding on the dotted lines.
3. Match the two edges labeled "AA" and tape them together.
4. Match the two edges labeled "BB" and tape them together. This will produce a shape like a crooked Y.
5. Match the two edges numbered "1" and tape them, then match the two edges numbered "2" and tape. Continue this in **numerical order**.

You have just formed what is called a truncated icosahedron. It has 32 faces which come together at 60 points. In a buckyball, there is a carbon atom at each of these points. The pattern of the bonds that hold the carbon atoms together is identical to the seams on a soccer ball.

