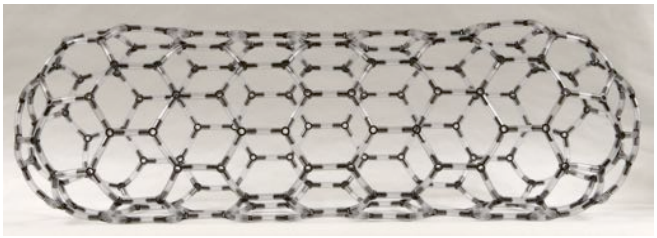
SUPER MODELS



C_{220} Buckminsterfullerene Molecular Model Kit

Ryler Enterprises, Inc.

Recommended for ages 10 - adult.

Caution: Atom centers and vinyl tubing are a choking hazard. Do not eat or chew model parts.

Kit contents:

222 black 3-peg carbon atom centers

333 clear, 1.25″ bonds

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Background Information

A Buckyball is a pure carbon sphere with 60 vertices created by the interconnecting of 12 pentagons and 20 hexagons matching the structure of a soccer ball.

Scientists have found that the Buckyball structure can be extended to form long, slender nanotubes that are comprised of single, double, or sometimes multiple layers of rolled sheets of graphite with caps of hemispheres of Buckyballs.

Experiments have shown these tubes to have extraordinary resilience and strength. They also exhibit electrical conductivity in a quantized fashion that has led to experiments with tiny nanowires and nanoscale transistors.

A whole new field of chemistry has opened to exploration with the discovery of the Buckyball and Buckytubes.

Possible uses of Buckytubes include superstong and light-weight new fibers, bullet-proof textiles, and nanoscale machines.

In 2007, a nano-research team from UC-Berkley fashioned a working nanoradio using a nanotube as an antenna, tuner, amplifier, and demodulator in the device. (see "The World's Smallest radio," by Ed Regis; SCIENTIFIC AMERICAN, March 2009).

Buckytube Assembly Instructions

1. Construct a hexagon with six of the 3-peg carbon atom centers and six clear tubes. See Fig. 1.

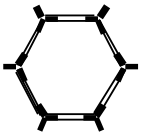

Fig. 1

2. Attach three atoms to pegs a and b of the hexagon to form a pentagon. Repeat with atoms c and d and then e and f. See Fig. 2.

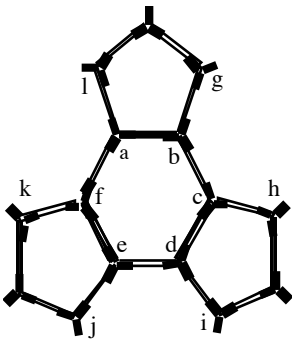

Fig. 2

3. Connect atom g to atom h using two more atoms to form a hexagon. Repeat with atoms i and j and then k and l. See Fig. 3.

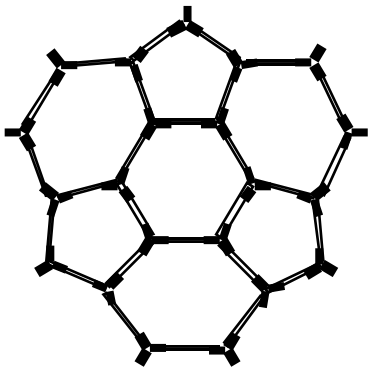

Fig. 3

4. Repeat steps 1-3 so that you have two copies of Figure 3.

5. Construct a series of eight hexagons with the 3peg atom centers and tubes. Attach two more 3-peg atom centers to the left end of this chain and put tubes on the pegs pointing left. See Fig. 4.

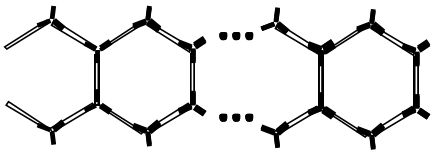

Fig. 4

6. Connect the left end of Fig. 4 to the right end of Fig. 4 to make a loop.

7. Repeat steps 5 and 6 four more times so that you have five loops.

8. Connect the five loops together to make a tube made of all hexagons.

9. Connecting the two end pieces (See Fig. 3) to the structure made in step 8 should form a ring of six hexagons and three pentagons on each end.

See completed C_{220} tube in Fig. 5 below.

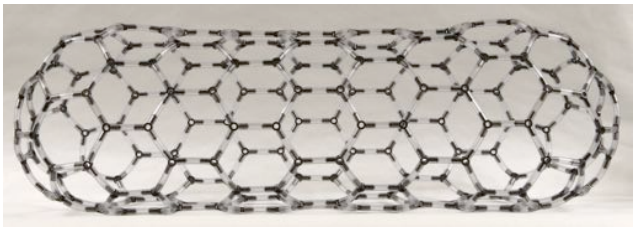

Fig. 5