SHOW WHAT YOU KNOW

Soma cubes:

Use what you now know about vertex pieces and two-coloring the pieces (and the cube) to solve the following:

1. Make a cube, but move the small cube from the lower left corner to the very top, above a corner.

2. Make a cube, but move the small cube from the center of the front edge of the lowest layer, and move it up to be above a central edge on the top layer.

3. Move 4 cubes from the centers of the four bottom edges to the top, above the centers of the edges (there should be a model of this on the table). Can this figure be solved with the Soma pieces? If not, can you prove why not? Try the same thing, but move the for bottom corners up above the top corners.

4. Solve Bram's Cube number 6, 7, or 8.

For all of these, think about what you've learned about the normal Soma Cube. Think about what pieces can or must go into corners (vertices), and if you 2-color the cube (like a 3-D checkerboard), what pieces need to go into what positions.

Conway Cubes (Un-holey cubes):

1. Try taking away the 3 small cubes (leaving the 6 2x2x1 pieces), and putting the 6 pieces into the cube box.

2. Try the "connected piece" cube. You should be able to get it together fairly quickly.

3. Try the 5x5x5 cube. It uses 1x1x3 sticks instead of 1x1x1 cubes. Where must they be in the solved cube? (There is also a version with 5 1x1x1 cubes, but you need to place the other pieces more carefully.)

4. Can you prove where the holes (1x1x1 cubes) must be for the 3x3x3 cube? For the 5x5x5 cube? Where the sticks must be for the 5x5x5 stick cube?

Instant Insanity

Ask the staff person for another version of Instant Insanity, and see if you can solve it with the graphics method.