National Aeronautics and Space Administration

Oh, What a Cupola!

According to NASA news in 2010, "The crew of the International Space Station (ISS) is about to get a new 'eye-pod'." A dome unlike any other window ever flown in space was launched on February 8, 2010 and attached to the Tranquility Module (also known as Node 3). This dome, called the Cupola, has seven windows for observing Earth, space, and the marvelous expanse of the ISS itself." With an approximately 70 centimeter diameter, the center circular window of the Cupola will allow astronauts stunning views of Earth processes, panoramic views of Earth, and spectacular pictures of the cosmos. The Cupola is also intended for operational purposes such as monitoring spacecraft docking as well as the use of the manipulator arm.

Image courtesy of NASA

Before NASA contracts to have a piece of the International Space Station built, engineers create a 3D scale model from a blueprint. Using Google SketchUp (http://sketchup.google.com/download/), you too will create a 3D scale model of the Cupola. Note: Do not include the window coverings included in the image below in your 3D design.

Image Credit: European Space Agency (ESA)

Cupola Design Specifications

- Overall Height: 1.5 meters
- Base Diameter: 2 meters
- Maximum Diameter: 2.9 meters
- Top Circular Window Diameter: 70.6 cm
- Trapezoid-Shaped Windows:
  - Height = 40.5 cm
  - Short side length: 40.0 cm
  - Long side length: 64.4 cm

For more details on the Cupola, check out:
http://esamultimedia.esa.int/docs/hsf_research/Climate_change_ISS_presentations/Cupola_Deloo.pdf

Hints when using Google SketchUp

- Program can be downloaded for free and is available for Macs or PC's platforms. http://sketchup.google.com/download/
- Once you have downloaded the program, consider the following recommendations:
  1. Allow students some time to explore the program and become familiar with the tools.
  2. Encourage students to watch some of the training videos.
  3. Have students choose a template for their model. A suggestion is to use: Architectural Design Millimeters.
  4. Have students go to View, and customize the toolbar to add any additional tools they may wish to use.

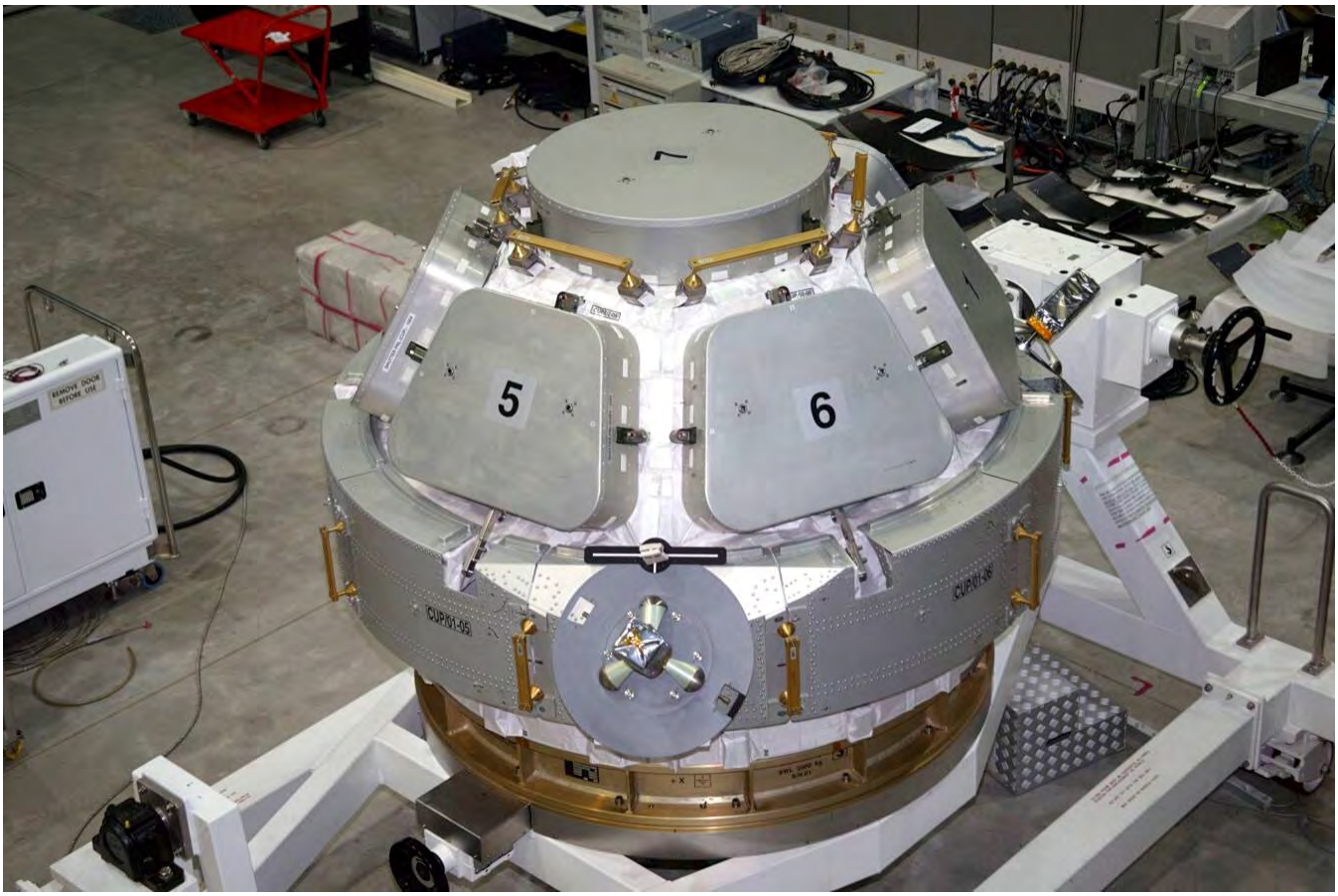

Image Credit: European Space Agency (ESA)