Making Space Stations

Grade Level: 6

Time Required: 1 class period

Countdown: http://voyager.cet.edu/iss/

- Newspaper
- Aluminum Foil
- Box of Straws
- Cardboard/Construction Paper
- Tape
- Scissors

Ignition:

Discuss the background of the space station in both the United States and Russia. (See NASA articles International Space Station: Russian Space Stations and International Space Station: U.S. Space Station History in the Appendix.)

Distribute books with illustrations of the Mir Space Station and sketches of the International Space Station. Point out the construction techniques. Mention that the stations use very light materials; ask the students “why?”. Elicit the following information: the heavier the material, the more fuel needed to get the station into outer space. Once in space, it is then weightless. Note also that the struts in the photos are arranged into triangular shapes.

Liftoff:

1. Students will construct a space station of their own design. Model how to construct the individual struts:
   a. Unfold one sheet of newspaper and tape a straw at a slant to one corner.
   b. Roll the newspaper onto the straw very tightly.
   c. When the newspaper has been completely rolled, tape the tag end to hold the roll.
   d. Students should make at least 8 struts before they begin planning their design and building it.

2. Using the struts, students will fold one strut over another at the ends and tape the two to make a corner.

3. Discuss the importance of their designs and emphasize durability. For instance, if students choose to make cubes, they may wish to reinforce their structures with extra struts.

4. Students share their ideas with the class.

5. Compare and contrast the different designs.
More ideas. . .

- Add “shuttles” paper airplanes, telescopes, satellite dishes, solar panels, etc. to the constructions. Compare and contrast the additions.
- Choose one astronaut that has been a part of the Mir Space Station. Research and write a paper on this astronaut. Emphasize the international cooperation of this project, as well as the many contributions made.
- Share the “astronaut” with the class. Students evaluate: What contributions did this astronaut make? What type of college degree does this astronaut have? What skills does this astronaut have that makes him/her valuable? What job do you think this astronaut might hold on the Space Station?
- Build an International Space Station model from one of the patterns found at:
  - http://www.marscenter.it/iss/download_iss.htm
- Where is the International Space Station now?
- Can you see the International Space Station from your back yard?
- Take the International Space Station challenge:
  - http://voyager.cet.edu/iss/