Shuttle Glovebox

Engineering Design Brief (Teacher Page)

Narrative: Scientists onboard the space shuttle and onboard the International Space Station (ISS) perform scientific experiments while in orbit. Many experiments are done in a sealed container called a *glovebox.* A glovebox has built in gloves that allow the scientists to handle the experimental materials and equipment in the box without breaking the seal.

Problem: You are part of a team of NASA engineers who have been asked to design and create a prototype of a shuttle glovebox.

Learning Standards

Technology/Engineering
Appropriate materials, tools, and machines enable us to solve problems. Engineering design is an iterative process involving modeling and optimizing for developing technological solutions to problems within given constraints. Ideas can be communicated through engineering drawings, written reports, and pictures.

Research the Need or Problem: There are many good reasons to use a glovebox onboard a shuttle as well as the onboard the space station. You can learn more about glovebox construction at the following websites:

http://www.gloveboxes.com/info/benefits-and-safety.php

http://ksnn.larc.nasa.gov/webtext.cfm?unit=glovebox

Materials: Empty copy paper box with lid, masking tape, scissors, ruler, construction paper, pencil, clear contact paper, packing tape, overhead transparency sheets, duct tape, jumbo plastic cups, thick rubber bands, dish washing gloves, disposable surgical gloves, tube socks, glue gun.