



The Cardboard Chair Project

Corrugated cardboard, made from a natural renewable resource, has one of the best environmental records. In 2002, more than 23 million tons of corrugated cardboard were recovered and recycled in the US – that is 74% of all cardboard produced in the same year. Cardboard has the best recycling rate of any packaging material used today. A hard look at every scrap of cardboard can lead the creative mind to see it as a valuable raw material. This is your opportunity to discover the potential of corrugated cardboard.

The Challenge:

Design a chair! This activity asks students to design and build a full-sized chair from **corrugated cardboard and adhesive**. The chair must support a pre-determined weight that is selected by the team for at least 5 minutes. The person seated will be in a “comfortable” position with his / her back leaning against the back of the chair. Students will get an opportunity to learn about paper and cardboard as a building material and the statics and dynamics of structures. This design competition is designed to encourage and reward excellence in design that integrates function (does the chair work); aesthetics (is it pleasing to the eye); ergonomics (is it comfortable for the average person); details (are my drawings and actual construction accurate); and fun. The judges and staff members will examine such things as ingenuity, creativity, comfort, strength, appearance and assembly.

The Materials:

1. Cardboard: No limit
2. Glue: Do not eat or use in excess
No other materials or fasteners of any type may be used.

The Design Constraints:

1. You will work in teams (three or less).
2. Research Ergonomics and the human body.
3. Each design team is required to compile ideas and make a rough design sketches with approximate measurements.
4. After team agreement on the ideal model, team are permitted to obtain cardboard and commence construction of the chair.
5. The seat must be at approximately 16” from the floor. + or - 1" tolerance
6. The Base of the chair must set within a 24" X 32" rectangle. There is no height restriction on the chair.
7. Drawings of intended solution, including measurements must be provided. The drawings may consist of any of the following: top-view, front-view, side-view, and pictorial or 3D drawing of the chair.

The Documentation:

Document your work in a portfolio that includes the following:

1. Rough drawings and compilation of all possible ideas that were explored.
2. 3D model of the chair.
3. Orthographic drawings of actual chair.
4. Ergonomic research data.

The Scoring: Documentation

1. ____/ 10 pts. Rough Draft (ideas, drawings, designs and notes)
2. ____/ 15 pts. Chair drawings (2 or 3 views & pictorial drawing)
3. ____/ 20 pts. Ergonomic and Research data
Comfort and Appeal
4. ____/ 20 pts Strength: Does the chair hold your weight? 225 lbs. min.
5. ____/ 15 pts Durability? How long will it last.
6. ____/ 25 pts. Appearance (evaluated by the judges)
7. ____/ 25 pts Construction and Assembly: cuts, bends and flats clean and neat?
8. ____/ 10 pts Is the chair's design unique?
9. ____/ 10 pts Where any unique options added?

Total _____ 150 pts possible