



Name: _____ Level: I or II School: _____

The Recycling Challenge

Recycling is processing used materials (waste) into new products to prevent waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage, reduce air pollution (from incineration) and water pollution (from landfills) by reducing the need for "conventional" waste disposal, and lower greenhouse gas emissions. Recycling is a key component of modern waste reduction and is the third component of the "Reduce, Reuse, Recycle" waste hierarchy. Corrugated cardboard, made from a natural renewable resource, has one of the best environmental records. More than 25 million tons of corrugated cardboard are recovered and recycled in the US each year – that is 74% of all cardboard produced each year. Cardboard has the best recycling rate of any packaging material used today. A hard look at every scrap of cardboard or other waste materials can lead the creative mind to see it as a valuable raw material. This is your opportunity to discover the potential of recycling.

The Challenge:

With a tight economy and spending down many times we look for ways of saving money. So the recycling challenge is to design and construct toys, a piece of usable furniture, or other useful item out of recyclable materials! The challenge if you decide to accept is to create a useable product, or item out of recyclable materials. ***This activity asks students to design and build the product from 100% recyclable materials such as cardboard, paper, plastic bottles or jugs, or any other types of recycle materials at their disposal.*** The project must be functional and have good design elements. Students will get an opportunity to learn about paper, cardboard, plastics and other recyclable materials 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 it work and serve a purpose); aesthetics (is it pleasing to the eye); ergonomics (is it comfortable for the average person to use); details (are the drawings and actual construction accurate); and fun. The judges will examine such things as ingenuity, creativity, appearance, function and assembly.

The Materials:

1. Recycle materials at your disposal: No limit: "Do not eat or use in excess", ***No new materials maybe used*** (entries are to use "**NO**" new materials in the production of the project, only materials that have been recovered or recycled from previous items maybe used). No materials deemed toxic or hazardous should or may be used in the construction of the project. (Any projects found to fall into this category will be removed from the contest and disposed of immediately at the entry competitor's expense.

The Design Constraints:

1. You will work in teams (two or less).
2. Research recyclable materials.
3. Each design team is required to compile ideas and make a rough design sketches with approximate measurements. After the team agrees on the ideal model, the team is permitted to obtain cardboard and construction the piece of furniture.
4. The footprint of the project must set within a 6 sq. foot square. There is no height restriction.
5. Drawings/sketches of intended solution, including measurements must be provided. The drawings must consist of (3-views): top, front, and side-view, and some type of pictorial drawing.

The Documentation:

Document your work in a portfolio that includes the following: a.) Rough drawings and compilation of all possible ideas that were explored, b.) Working drawings of actual piece of furniture. C.) Research data.

Judging Criteria:

1. ____ / 5 pts. Research data and rough drafts (ideas, drawings, designs and notes)
2. ____ / 5 pts. Working Drawings/sketches of the toy (2 or 3 views & pictorial drawing).
5. ____ / 10 pts Strength and durability: How long will it last.
6. ____ / 10 pts. Appearance (pleasing to the eye, evaluated by the judges)
7. ____ / 20 pts Construction and Assembly? (craftsmanship)
8. ____ / 20 pts Functional?
8. ____ / 25 pts Is it unique?

Total _____ 100 pts possible

Place: _____