CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1514

Project Title
Going Green While Staying in the Black: An Alternative Material for Packaging

Abstract

Objectives/Goals
People mail boxes every day using Bubble Wrap, Styrofoam peanuts and other packing materials. Although these products work, they cost money and are not biodegradable. An alternative choice is shredded paper from a home office. Shredded paper is an effective way to recycle. Even FedEx, in an article discussing holiday shipping for Christmas 2009 recommended looking for "smarter, greener" Eco-friendly packing materials to cushion the boxes contents such as shredded paper. In this science project, I seek to eliminate the doubts about the protective capabilities of recycled shredded paper as a packing substitute; and, will show that using shredded paper as a packing material as reliable as using packing supplies purchased from a store.

Methods/Materials
My project examined the usage of Bubble Wrap, Styrofoam peanuts and shredded paper as practical packaging materials. Using 8 oz. Kerr Quilted Jars, scissors, Bubble Wrap, quarters, a camera, packing tape, shredded paper, Styrofoam peanuts, water, Soehnle Digital Scale, a 10' ladder, and 10 6.5" x 6.5" x 6.5" boxes. I will try to prove that shredded paper works just as effectively as Bubble Wrap and Styrofoam peanuts.

Results
There is a 3/10 probability that the item in the box will break/dent using shredded paper. There is a 4/10 probability that the item in the box will break/dent using Bubble Wrap. There is a 4/10 chance that the item in the box will break/dent using Styrofoam peanuts. I also figured out the expenses of paying for packaging materials for a month/year. With Bubble Wrap costing $20 for 35 feet, it would cost $80 a month and $960 a year. Styrofoam peanuts cost $22.99 for 7 cubic feet, cost $91.96, costing $1103.52 a year. Also, since household shredded paper is mainly discarded envelopes, it is free.

Conclusions/Discussion
My hypothesis turned out to be correct. I predicted that the shredded paper would work best, which it did. The item in the shredded paper box broke once. The item in the box with Bubble Wrap broke three times. The item in the box with Styrofoam peanuts broke two times. This happened because the density of the shredded paper fills the box making a compact package, something pushing on all sides of the object makes it move around less.

Summary Statement
My project is about using household shredded paper as an economical and enviromently safe packing method.

Help Received
Mother, Uncle, Grandma and Grandpa helped edit my research paper.