

TECH: Structure Design (Const) Class

Summary

A new pdf. file in December 2011. Students will design and construct a paper structure that will support as much weight as possible, yet be within the design specifications. Students will examine building materials.

Time Frame

3 class periods of 45 minutes each

Group Size

Individual

Life Skills

Thinking & Reasoning, Communication, Employability

Materials

A structure tester (that the teacher would make which is described in the teacher resources section of the PDF file) and about 150 lbs of free weights.

Background for Teachers

This is a replacement of the "Platform Design" activity. The student completes a structure to hold as much weight as possible out of a single sheet of paper. The instructor is responsible for guiding the students on how to adapt their structures to meet the specifications. The instructor will do the testing of the structures. The structure is being figured on the weight it collapses on. The images on this document come from a variety of sources. They are either public domain, royalty fee, created by the author, or used by arrangement with the copyright holders. No permission is granted for the copying or re-use of any images used in this document, copyrighted or otherwise. Structure Design© USOE has purchased rights to the document which gives individual teachers within the state of Utah rights to print this document for use in their classes.

Student Prior Knowledge

It is suggested that students read the booklet prior to activity.

Intended Learning Outcomes

Practice problem solving skills and explore ways to develop independence and take responsibility. Explore the construction technologies used in our world. Explore construction materials used in building structures. Use career information to explore various occupations of personal interest. Identify school courses that support career interests. Students will develop an understanding of engineering design. Students will develop abilities to apply the design process.

Instructional Procedures

Day 1 : Class reads the booklet with the instructor providing guidance on who reads. Students examine building materials (examine teacher's resources for these)as they are passed around during the time they are reading. The students work on questions as the class members read. They can not answer question 1 or 10 until the activity is completed. Day 2: The procedure is explained and students are given a sheet of paper to start. Students are given directions on the goals for the day

and it is explained that they need to finish today. Students work on the problem. They also work on the worksheet. Day 3: The teacher tests structures. The instructor is applying weight and the students watch. The instructor leads the class through the conversion of kilograms to pounds for question # 1. Students answer question #10 and hand in the worksheet.

Assessment Plan

Students get two separate grades. They receive one grade for testing their paper structure, and another grade for the completed worksheet.

Bibliography

Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2010-11 Edition, Carpenters, Retrieved December 3, 2011 from <http://www.bls.gov/oco/ocos202.htm> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2006-07 Edition, Architects, Except Landscape and Naval, Retrieved March 20, 2006 from <http://www.bls.gov/oco/ocos038.htm> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2006-07 Edition, Construction and Building Inspectors, Retrieved March 20, 2006 from <http://www.bls.gov/oco/ocos004.htm> Careeronestop, U.S. department of labor, Carpenters, America's career infonet, 2010 statistics, Retrieved December 3, 2011 from http://www.careerinfonet.org/occ_rep.asp?next=occ_rep&Level=&optstatus=010110111&jobfam=47&id=1&nodeid=2&soccode=472031&stfips=49&x=66&y=16 Harms, H. R., Swernosky, N.R. (1999). Technology interactions (pp. 158 -179) New York: Glencoe/MacGraw-Hill. Utah Vocational Core Curriculum. (1986). Platform Design. Salt Lake City: Utah State Office of Education Utah Vocational Core Curriculum. (1992). Platform Design. Salt Lake City: Utah State Office of Education Wikipedia, Engineered Wood, Retrieved March 28, 2006 from http://en.wikipedia.org/wiki/Engineered_wood Wikipedia, Masonry, Retrieved March 28, 2006 <http://en.wikipedia.org/wiki/Masonry>

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