

# TECH: Hydraulics (Energy/Power) Class

## Summary

Updated in November of 2011. Students will participate in a demonstration of hydraulics. They will understand basic hydraulic principles.

## Time Frame

2 class periods of 60 minutes each

## Group Size

Large Groups

## Life Skills

Thinking & Reasoning

## Materials

1 Hydraulic demonstration kit.

## Background for Teachers

The full list of equipment to be purchased is on page 10 and 11 of the PDF file. The stand for the hydraulics demonstrator needs to be built by the teacher. It is recommended that the teacher read through the booklet to familiarize themselves with the demonstration. 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. Hydraulics© Mike Breen - Author of document. 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 in the booklet through the heading "Determining Cylinder Force" prior to the demonstration.

## Intended Learning Outcomes

Understand the basic principles of hydraulics. Understand where hydraulics are utilized in our world. Practice problem solving skills. Explore Energy/Power technologies used in our world. Use career information to explore various occupations of personal interest.

## Instructional Procedures

Day 1 : Class reads the booklet with the instructor providing guidance on who reads. The demonstration is started, students lift the 6 kilogram weight with their thumb on a dare from the instructor. Instructor completes the demonstration by incorporating the hydraulic tester, and all students lift the weight with their thumbs. Day 2: Students finish reading booklet and the problems and questions are answered with each student working on their own. Each student is able to use a booklet to look up the answers. The instructor may lead them through the math problems as a class. If there is time and a projection system available, the site [howstuffworks.com](http://howstuffworks.com) and the page on hydraulics with the video information can be incorporated or these sites can be used as extensions for students if a computer lab is readily available.

## Strategies for Diverse Learners

Assign the extension lesson as homework. Instead of giving the students the exact page have them go to [howstuffworks.com](http://howstuffworks.com) and enter hydraulics and elevators in the search bar and let them explore the site.

## Extensions

Web site showing hydraulic equipment being run. This may be incorporated into the end of the class if a computer lab is available. It may also be guided by the teacher if a projector system is used in conjunction with the lesson.

## Assessment Plan

Students get two separate grades. They receive one grade for participating in the hydraulic demonstration, and another grade for the completed worksheet.

## Bibliography

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