

# Thermal Expansion of Liquids

## Summary

Students can more easily see the expansion of liquids than solids. This activity allows them to compare the expansion of three liquids in a demonstration activity.

## Main Core Tie

SEEd - Grade 6

[Strand 6.2: ENERGY AFFECTS MATTER Standard 6.2.3](#)

## Time Frame

1 class periods of 60 minutes each

## Group Size

Small Groups

## Materials

## Instructional Procedures

Set up the apparatus ahead of class. See [diagram attached](#). Any liquids can be used but some type of alcohol should be used, water and oil are commonly used.

Hook activity: Freeze a soda can in a freezer overnight (in a heavy duty plastic bag!)

Show students the warped can and ask them to explain how this could have happened. After they have made a few guesses, describe how you froze the can and discuss what expansion means and thermal (anything related to temperature).

Handout the student sheet and show students the apparatus. Due to the difficulty of setting up this activity, it is easiest to do as a demonstration.

Turn on heat source and establish starting levels for liquids in the glass tubes. You may wish to use a marker and mark them.

Have a different student come up every two minutes and measure the level of the liquids in each tube. Warn them not to press on the stoppers as that can change the level of the liquid in the tube.

Collect data for 16 minutes or until the alcohol threatens to squirt out the top of its glass tube.

Help students set up their graphs. Work on the terms "independent" and "dependent" variables. Time is the independent variable and the levels of the liquids are the dependent variable. (The level depends on the amount of time that has passed).

Student should graph a line for each substance and connect the dots. Explain that the line graph is most commonly used when time is the independent variable. The gradual increase in height is best pictured as linear and not as independent points on a bar graph.

Allow students time to work on the analysis questions and conclusions.

## Bibliography

Lesson Design by Jordan School District Teachers and Staff.

## Authors

[Utah LessonPlans](#)