Can You Explain It?

Summary

Students will have several options to demonstrate their understanding of thermal expansion and the impact of expansion and contraction of solid materials on the design of buildings, highways, and other structures.

Main Core Tie

SEEd - Grade 6

Strand 6.2: ENERGY AFFECTS MATTER Standard 6.2.3

Time Frame

1 class periods of 45 minutes each

Group Size

Small Groups

Materials

For demonstration:

- 3 mason jars with ring lids
- hot water
- medium temperature water
- ice water
- hot pad

For student projects:

- computer lab
- construction paper
- markers
- video or digital cameras (or any combination)

Instructional Procedures

Hook the students with a demonstration of your "strength".

Place 3 lids very tightly on 3 jars (you might even heat them first). Heat one large beaker of water so that it is very hot and have two that are cold.

Invite the two "strongest" students in the class to come to the front and challenge them to a contest to take the lids off the jars.

First have all participants try to take off the lids. Hopefully, they will not come off. Suggest that the students place their jars (lid first) in the cold water. Place yours in the hot water. Try removing the lids again and show the students how strong you are.

If students suggest the contest was rigged, ask them to explain how you were helped by the hot water.

Describe the three opportunities the students will have to demonstrate their knowledge about thermal expansion and contraction. They may:

- Film a short video warning about the risks of not understanding thermal expansion.
- Make a poster with two examples of controlled and uncontrolled expansion or contraction.
- Create a power point presentation with 5 slides showing examples of how man made structures must make room for expansion.

Share the rubrics with them before beginning.

Assessment Plan

Use the attached scoring guide.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

Utah LessonPlans