CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)

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Project Number

22097

Project Title

The Relationship Between Kinetic Energy of a Dropped Object Impacting Water and Height of Its Resulting Wave

Abstract

Objectives/Goals

The purpose of this project is to determine a relationship between the kinetic energy of a dropped object and the height of the resulting wave.

Methods/Materials

Materials used include a Tupperware container, food dye, a small ball, string, a permanent marker, paper, a ceiling hook, and water.

Our procedure: Fill the container up to 5.8 cm of water, add food dye, cut strips of paper, mark each, place 3 around the container with the mark meeting the water, secure papers by folding over edge, mark at 2, 5, and every 2.5 after up to 50 cm, hang string from hook so that it barely touches water, drop ball from first drop height and allow resulting waves to subside, examine the paper, measure the change of the wave height, and repeat 3 times for each height.

Results

Our results tapered from the hypothesis graph and then wavered. The tapering was caused by elasticity of water. Splashing and increasing kinetic energy of hte ball caused the wavering. Energy was also lost to sound upon impact and possible superposition of waves.

Conclusions/Discussion

We conclude that the energy of a wave related to the kinetic energy of hte ball as 1/x as long as thx material and confines of the wave allowed.

Summary Statement

To find a relationship between the kinetic energy of a dropped object impacting water and the height of its resulting wave

Help Received

No help or aid of any sort was received