

Moment of Inertia

Description

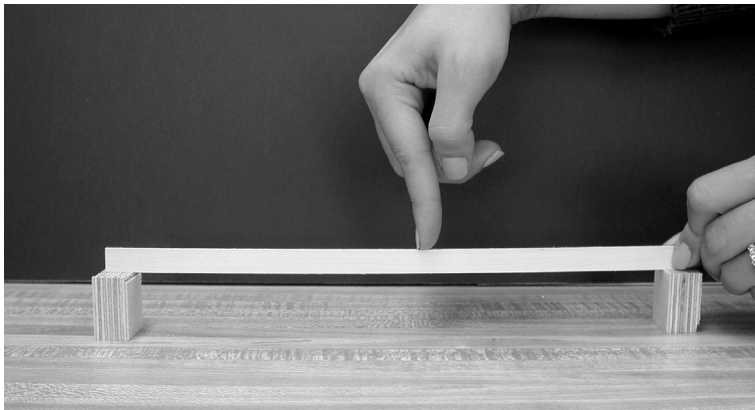
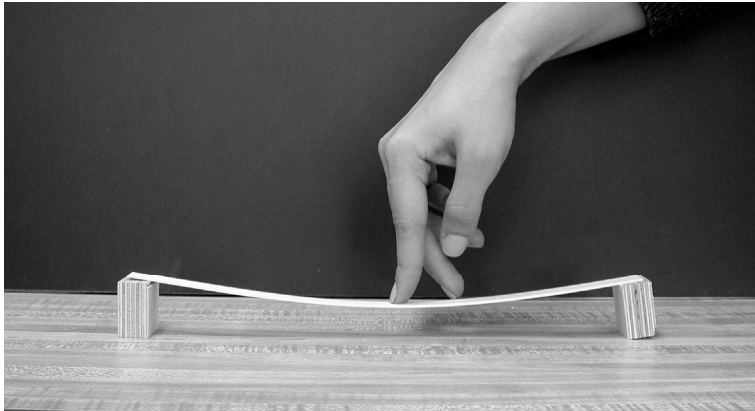
This project uses observation and calculation to investigate the moment of inertia.

Goals

- To observe the strong and weak axis moment of inertia through physical testing.
- To calculate the strong and weak axis moment of inertia for a given section.
- To compare the physical sense with the calculated values.

Procedure

1. Span the given 1/16" x 1/2" basswood stick flatwise between two supports.
2. Load the 'beam' at mid span with your finger to cause about 1/2" deflection.
3. Now rotate the stick 90° so that it is on the narrow edge, and hold it in place.
4. Again with your finger apply about the same load as before, and notice how much stiffer the beam has become.
5. Now calculate the moment of inertia for both orientations – flatwise and on edge.
6. Compare the two numbers and observe how they relate to the actual stiffness you felt with your finger.



Moment of Inertia
of a rectangle

$$I = \frac{bd^3}{12}$$

Due

During recitation