Beam Geometries and their Strength

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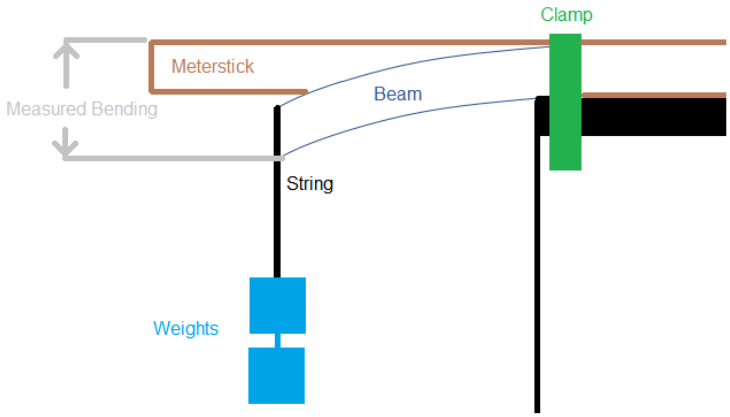
Abstract

This experiment was conducted in order to answer a question concerning torques and forces: How do well do different shapes of beams resist bending due to a load being placed on their end? The experiment utilized 3D-printed beams of various different profiles in order to

Procedure

1. Take a beam and clamp it to the table, making sure that the end hangs off 85 mm off of the edge of the table. Orient it so that the hole in the beam goes sideways, and is also hanging off the table
2. Tie a string around the hole in the beam and attach two 200g weights to the end of the string
3. Place a meter stick next to the bending beam to use as a horizontal reference, and measure the amount of bending by using the caliper to measure dimension along the vertical axis from the top of the meterstick to the bottom of the end of the beam Record this value
4. Use a scale to measure the mass of the beam
5. Repeat steps 1-4 for every single beam
6. Measure and record the height of the meterstick



Data

Conclusion