



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Armen S. Arslanian	Project Number J2202
Project Title Birch Hardwood vs. Particle Board/MDF?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this experiment was to prove that Birch Hardwood is stronger than Particle Board composite wood and MDF composite wood.</p> <p>Methods/Materials An experiment was designed, consisting of two tests, Torsional Resistance and Cantilever Deflection. In the Torsional Test, the angle and force at which the wood was broken was measured, while in the Cantilever Deflection, the length of deflection and the amount of force which caused the wood to be broken were measured. Both tests relied on an experimental setup consisting of test bars and a clamp that held the wood samples, which broke according to the amount of force applied, measured by the spring balance(s).</p> <p>Results The data for both tests indicated the same result that Birch Hardwood is stronger, requiring more force to break.</p> <p>Conclusions/Discussion Anything using Birch Hardwood would be stronger and less likely to break. Solid wood is more homogeneous and therefore has higher resistance to torsion and deflection. A factor that could have affected my results is the fact that the Particle Board composite wood and the MDF composite wood are not uniform. Therefore this is why there were different results for different test bars of the same Particle Board and MDF composite woods. To improve this project, a mechanism should be added to the Deflection test to enable pulling the stainless steel wire with maximum force of 70 kg.</p>	
Summary Statement Birch Hardwood is stronger than Particle Board and MDF composite woods.	
Help Received Dad helped with the setup.	