



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Alec Gronberg; Chaz Marshall  | <b>Project Number</b><br><b>J0212</b> |
| <b>Project Title</b><br><b>The Effect of Blowgun Length on the Energy of Its Projectile</b>   |                                       |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>Our project was designed to determine how the barrel length of a blowgun affects the energy of the projectile.</p> <p><b>Methods/Materials</b><br/>To conduct our experiment we first used a 61.0 cm (2 ft) blowgun. We then laid out a wooden trough, and put a wooden dowel at the end of the trough. We lined up the blowgun so the end of it was pointed at the center of the dowel. We then put the projectile (the dart) into the blowgun. Next we turned on the air compressor and fitted the nozzle into the mouthpiece of the blowgun. We pulled the trigger, the projectile shot into the dowel, and we measured how far the dowel went. We also did this with the 91.4 cm (3 ft) blowgun, the 152.4 cm (5 ft) blowgun, and the 121.9 cm (4 ft) blowgun. For our experiment we needed two 61.0 cm (2 ft) blowgun barrels, one 91.4 cm (3 ft) blowgun barrel, two blowgun mouthpieces, two connectors, five stun darts, one wooden trough (244 cm), one 2.5 cm (one in) wooden dowel, one measuring stick, one air compressor, and one nozzle. The 121.9 cm (4 ft) blowgun barrel is made by attaching a 61.0 cm (2 ft) blowgun with another 61.0 cm (2 ft) blowgun barrel. The 152.4 cm (5 ft) blowgun barrel is made by attaching a 61.0 cm (2 ft) blowgun with a 91.4 cm (3 ft) blowgun barrel.</p> <p><b>Results</b><br/>After we had conducted our experiment we found that the lengths for the different lengths of blowguns, in order of distance, was, the 91.4 cm (3 ft) blowgun at 49.66 cm, then the 61.0 cm (2 ft) blowgun at 51.2 cm, then the 121.9 cm (4 ft) blowgun at 71.58 cm, and finally the 152.4 cm (5 ft) blowgun at 82.94 cm.</p> <p><b>Conclusions/Discussion</b><br/>Our results proved that the longer the barrel length is, the more energy there is in the projectile. The reason we think that the 91.4 cm blowgun had the least about of energy in the projectile is because we had one bad trial. In this one bad trial we had a measurement which was far below the average of the other trials and this brought its average down. If we hadn't done that one trial, the order of blowguns from most powerful to least powerful, would be the 152.4 cm (5 ft) blowgun, then the 121.9 cm (4 ft) blowgun, then the 91.4 cm (3 ft) blowgun, and finally the 61.0 cm (2 ft) blowgun.</p> |                                       |
| <b>Summary Statement</b><br>Our project is about the relevance of barrel length of a blowgun, to the energy of its projectile.  |                                       |
| <b>Help Received</b><br>We went to Sid's Apholstrey to use their air compressor to conduct our experiment.  |                                       |