

NDIA Grant Final Summary  
Ruckel Middle School  
Scarlett Brock

This year the students competed in air powered dragster races. Fifty five 6<sup>th</sup> graders and twenty five 7<sup>th</sup> graders competed in the races. Both classes started by learning about Newton's laws, thrust, aerodynamics, speed, pressure and acceleration. Then students launched test dragster to determine how various factors, such as wheel size, affected the dragsters performance. Photogates (from a previous NDIA grant) were used to calculate the speed. Student then designed and constructed their dragsters. 6<sup>th</sup> grade students assembled a precut balsa body that they sanded smooth and decorated. 7<sup>th</sup> grade students cut, shaped and sanded a small balsa blank. After construction, students participated in a single elimination race. Again, using photogates, students calculated the speed of the top three dragsters. This project was amazing! The kit used by the 6<sup>th</sup> graders provided a safe and simple introduction into dragster racing. Next year students will complete this activity again. Instead of buying a kit, students will design and cut their dragster from a balsa sheet. The smaller balsa blanks used by the 7<sup>th</sup> graders were so easy for them to work with. I was surprised at how many different body styles they were able to make from such small blanks. I really feel that they will be much better equipped to deal with the larger, denser balsa blanks when they complete the CO<sub>2</sub> dragster as 8<sup>th</sup> graders. 88% of the 7<sup>th</sup> graders reenrolled to take STEM next year. Of the three that did not sign up, two are moving out of state. When compared to last year, that is a 32% increase in the number of 7<sup>th</sup> graders choosing to stay in STEM. 6<sup>th</sup> graders also showed a 12% increase in students continuing in the STEM program. Three years ago the STEM program started with one class of 6<sup>th</sup> graders. This year we had four classes and next year is looking at five or six classes. It is because of community partners like NDIA that we are able to offer exciting curriculum and continue expanding the program.

Thank YOU  
Scarlett Brock

6<sup>th</sup> Graders



Air Powered Launcher



7<sup>th</sup> Graders



Top 4 Dragster  
From left to right

