Shrewsbury High School

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Memorandum: Recognition of First Place performance at STATE Level Science & Engineering Competitions

To: Joe Sawyer
School Committee
Todd Bazydlo

From: Dave Hruskoci

Date: June 9, 2016

Subject: First place performances at State Level – Science & Engineering

Team: Andrea Williams (11) and Mounith Madadi (12)
• First Place 2016 – Gold Medal in STATE Science Olympiad for event titled "Wright Stuff"
   • In Andrea's words: Science Olympiad is a collaborative effort that revolves around a science related task. It exists at both a middle school and high school level. The events are typically categorized as building events, which require the construction of a device, or testing events, which require studying a topic to take a test at the competition. For our event, Wright Stuff, we designed a rubber-powered airplane to see how long it could stay in the air.

Aryan Naik (11)
• First Place 2015 – Science & Engineering STATE Fair. Project Titled "Does Social Isolation Increase Glucose performance in zebra fish"
   • In Aryan's words: My experiment explored the correlation between depression and stomach microbiota. By socially depriving the vertebrate animal model Zebra Danio, and measuring the frequency and feeding behaviors associated with the glucose consumption, I was able to analyze key behavioral characteristics of clinical depression. The data was highly conclusive, and I was able to draw unique solutions to our understandings of how we diagnose and treat clinical depression in humans.

Team: Vikram Pathalam (11) and Varun Swamy (11)
• First Place 2016 – Science & Engineering STATE Fair. Project Titled "Automated Diagnosis of dementia through MRI scan application'
   • In Varun's words: Dementia, a category of symptoms associated with memory loss, is a huge worldwide issue which currently affects over 47.5 million people and is commonly seen in forms such as Alzheimer's and Parkinson's Disease. This is why we created a program using MATLab software which could utilize MRI scans along with basic patient information in order to make a formal diagnosis in minutes, in comparison to the months of testing currently required by doctors. Our program was able to diagnose the prevalence, type, and severity of dementia in a patient with over our hypothesized 90% accuracy rate across 1000 trials.