



MCA Students Do Well at Regional Science Fair

Top winners from the MCA science fair and research paper competition recently competed at the regional level on the campus of Appalachian State University. MCA had a great showing of winners! Students competed in the science fair, the research paper competition, or both.



MCA has four elementary and junior level winners in the science fair division. In front, 5th grader **Benjamin Sorrell** was among the top ten winners with his project "Corrosion Explosion." On the back row, left, 8th grader **Ayden Turner** won 2nd place in the technology and engineering division with his project "Hot Spot" which worked with detecting variant temperatures of moving objects. Both students will advance to the state fair at NC State University in March. Back center, 8th grader **Lexi Edsall** received an honorable mention with her project in the biological sciences division researching how age affects balance. Back right is 7th grader

Benjamin Black, who won first place in the physics and mathematics division with his project that researched wheel size versus momentum. He will also be moving on to the state level of competition.

In the research paper competition, three junior level students will advance to the state level competition held at the NC School of Science and Math in Durham, NC, in March.

Cheyenne Rogers, 8th grade, left, received first place honors in the technology and engineering division with her project and paper which researched the relationship of sun and skin aging. In the



center, **Palak Patel** won second place in the behavioral sciences division with her research paper presentation about how sleep affects cognitive ability. On the right is **Brooks Harold**, 7th grader, who won third place in the behavioral sciences division with his paper presentation about how personality type affects short term memory. Two MCA high school students won in both the science fair and the paper competition and will be advancing to the state level for both events. Learn more about their fascinating project in our Science Spotlight on the following page.

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MILLENNIUM CHARTER ACADEMY EVENTS WORTH ROARING ABOUT


Science Spotlight



Senior **Alayna Smith** (left) and junior **Madison Lawson** won first place in both the high school regional science fair and research paper competitions with their project investigating the creation of an environmentally-friendly, non-toxic plastic. Both students are currently participating in online engineering classes through a partnership MCA has with the NC School of Science and Mathematics, as well as participating in MCA's dual credit partnership with Surry Community College. As a result of the latter, both have taken chemistry at the college level where they will receive both high school and college credit. Under the mentorship of Dr. Robin Narehood, their SCC chemistry instructor, they were able to use laboratory resources at the college. Alayna and Madison used the common ingredients of potato starch, glycerol, and acetic acid to form a mixture, which when heated, created a

plastic-like material. Their challenge was finding which concentrations of the mixture which created the strongest plastic. After many trials, they learned that higher glycerol levels produced more flexible rubber like materials, while lower glycerol levels, combined with higher molarities of acetic acid produced more rigid materials. Once materials were created, Alayna and Madison tested to see how much weight the plastics could hold with the material at one millimeter thick. The more flexible materials held two pounds, while the more rigid material held twice that amount.

Alayna has just received her acceptance to NC State University, where she plans to major in biomedical engineering. Madison plans to apply to NC State University next year, where she hopes to major in agricultural bio-tech engineering.



On the left is a square of the environmentally safe and non-toxic material that Alayna and Madison created. To the right, is a sheet of the new plastic prepared for a weight test.

In addition to winning first place in the fair and research paper

categories, Alayna and Madison won a special presentation award for their project board display.

