

## Littleton Public Schools

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## Littleton High School Students Present Original Experiments at State Massachusetts Science and Engineering Fair



*From left, Littleton High School students Finley Pletcher, Finn Canning, Anika Jacob, Samuel LeDoux, Haaris Khan, and Siddarth Padamati at the State Massachusetts Science and Engineering Fair. (Photo Courtesy Littleton Public Schools)*

LITTLETON — Superintendent Kelly Clenchy is proud to share that several Littleton High School students recently presented their original research projects at the state level Massachusetts Science and Engineering Fair (MSEF).

[Massachusetts Science and Engineering Fairs \(MSEF\)](#) holds high school and middle school-level science fairs that allow students to explore and manage an experimental project of their choosing. Students must follow a set of guidelines when choosing a topic and conducting their research. At the Fairs, they must present written lab reports, engaging visual displays, and a journal that outlines their research process, and they must demonstrate their knowledge of their project and scientific field to a panel of judges.

On Friday, April 5, seven LHS students attended the MSEF State Science and Engineering Fair at Gillette Stadium.

Four groups of LHS students presented their experiments at the Fair:

- Grade 11 students Finn Canning and Finley Pletcher presented "A study of water quality in Littleton, Massachusetts." At the Region IV science fair in March, Finn and Finley received the award for Outstanding Environmental Science Project. They tested water samples from bodies of water and private wells all over Littleton for more than 20 contaminants.
- Grade 10 students Arohan Pathak and Siddarth Padamati were awarded the Ricoh Sustainable Development Award for their project "A Study of Natural Plastic Biodegradation by Polyphenol Oxidation Using *Galleria mellonella*." The award honors students who develop innovations that bolster environmental sustainability and embody the values of Ricoh's longstanding global commitment to pursue excellence, improve quality of life, and drive sustainability. In their project, Pathak and Padamati found that waxworms, the larvae of the wax moth, can digest and break down plastic bags using a natural enzyme called phenoloxidase found in their saliva.
- Haaris Khan, Grade 10, and Samuel LeDoux, Grade 11, presented their engineering project, "Magnetomicrometry Orthotic." They created a prototype wrist and hand brace that utilizes magnets to assist hand movements. Anika Jacob, Grade 10, received an Honorable Mention for her project "A Study on the Effect of Caffeine on the Growth and Development of Zebrafish Embryos Using Automated Quantitative Assessment of Morphological Changes." Jacob also was awarded the Pauline J. LaMarche

Memorial Award, which is given to a project that displays excellence in design and implementation. During her research, Jacob found that even small levels of caffeine in the environment affect the growth and development of zebrafish larvae.

More than 350 students from around the state presented projects at the Fair. To qualify for the state-level competition, projects had to score in the top 40 percent of their regional fair. Each school was also able to nominate an additional two projects.

One student reflected on the experience and said: "I enjoyed being able to work on a project independently with a partner! Making all the progress myself (with some help here and there) was such a great feeling."

Another expressed that they enjoyed the experience of scientific research, the discovery process, and the experience of presenting a project at a college.

"It's important to give students the opportunity to research scientific topics that interest them the same way modern scientists and engineers do," another student said. "Not only that, but it provides opportunities to win various awards and scholarships that bolster a student's profile and help them get into better colleges."

Dr. Valerie Finnerty is the STEM Research Club faculty leader and has mentored students conducting original science and engineering projects at the middle and high school levels for the last 23 years. She has coordinated the Littleton Middle School Science and Engineering Fair for 16 years and is now working to grow the program at Littleton High School.

This year's projects were financially supported by grants from the Littleton Education Fund and the Littleton PTA.

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**A message from Littleton Public Schools**