

# Grade 8 student takes gold at national science fair

By Dominik Kurek  
OAKVILLE BEAVER STAFF

A year after picking up a pair of awards at the Canada-Wide Science Fair, Oakville's Calvin Rieder returned with a continuation of his project.

The result netted the Grade 8 Oakville Christian School student a gold medal in the junior category (Grade 7, 8) at this year's national competition, which took place in Toronto May 14-21.

The top finish (10 gold medals per age group) improves on the bronze he took home last year in the junior engineering category.

This year's award comes with \$5,500 in cash and scholarships.

"It was great (to win) because last year I got bronze," he said. "As they're giving out the awards, they start with the bronze and it transitions to the gold, and the pressure increases as it goes through. I felt great when I won."

Rieder came to this year's science fair, after getting the invite to the nationals at this year's Bay Area Science and Engineering Fair, with a continuation of last year's project, titled Water, Water, Everywhere, Nor Any Drop to Drink. Through

the project, the young scientist designed an atmospheric water condenser that can collect pure drinking water right out of humid air.

The original idea for the project came after he learned of the water problems in the third world, such as millions of people having to travel long distances just to get water.

So he built several prototypes to get water right out of the air and this year he took the project even further.

"This year, I continued towards more practical condensers by testing different types of materials, particularly stainless steel and making aerodynamic modifications to my original design," he said.

This year's units are also one and a half times the size of last year's condensers, now about 70 cm tall, which gives him a larger surface area for a greater water yield.

"I also tested how I could increase the water yield without having to increase the size greatly of my condenser," he said.

One such way to increase water yield is to use stainless steel, instead of the aluminum designs



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**MY SCIENCE PROJECT:** Grade 8 Oakville Christian School student Calvin Rieder sits on his back porch with his gold medal from the Canada-Wide Science Fair and his atmospheric water condenser behind him on the right.

from last year.

"Stainless steel has a much lower thermal conductivity, meaning that once it cools to below the dew point, which is the temperature needed for condensation to occur, it would stay at that tem-

perature than other metals would," he said.

Furthermore, he added aerodynamic modifications.

"Last year, I found airflow is crucial in condenser design, so I thought if I could maximize air-

flow, my water yield would be higher. Through testing, I found my efficiency was increased."

His best water yield during testing was 55 millilitres per half-hour, which is about 3 litres per day.

Water condensers are already used in places such as Africa, where water is hard to come by. However, people use condensers that are inefficient and require a large area due to their size. They also deal with issues of damage and contamination.

To eliminate contamination, Rieder designed a cover for his condenser to stop contaminants from entering through the top. However, he found this cuts off air circulation.

"The problem with designing the cover was, this completely cuts off air circulation, so I had to design even more ways to introduce air into the condenser," he said.

He actually used some ancient Iranian designs to improve airflow into his condenser, which he said worked well.

The project took him eight months to complete. Rieder is thinking of going into science, either marine biology or engineering as a career pursuit.

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