

# CWSF 2014 - Windsor, Ontario



## Tasnia Nabil

### NANO: Enhancing The Performance of A Solar Collector With Nanofluids

**Challenge:** Energy

**Category:** Junior

**Region:** Windsor

**City:** Windsor, ON

**School:** Talbot Trail P.S.

**Abstract:** Flat plate solar collectors are most commonly used in residential applications, however, their efficiencies are comparatively low. In order to increase the efficiency, a novel approach is to use nanofluids as heat transfer fluid. Nanofluids of three different nanoparticles (graphite, aluminum & alumina) were tested at two volumetric ratios (0.2% & 0.5%) and three flow rates to determine the percentage increase of a collector's efficiency.

#### Biography

My name is Tasnia Nabil and I am an 8th grade student at Talbot Trail Public School. This is my 5th Regional Fair and my first time at CWSF. Science has always been my passion, specifically renewable energy engineering technology. My first ever regional science project when I built a sustainable energy efficient model home, and for the rest of my science fair years the projects were done on solar photovoltaic technology. This year, I am doing solar thermal technology project. I have always loved finding energy alternatives to the present and future needs and innovations. I have also participated in many academic competitions such as the Gauss Math Competition, the Caribou Math Contest, the Spelling Bee of Canada, robotics activities, and public speaking. I play piano, soccer, and badminton. In my free time, I am usually found reading books and writing stories and poetry. I enjoy giving back to the community and raising awareness for today's environmental issues and energy solutions and I wish to continue my research further that can contribute to community awareness about sustainability and sustainable future.

#### Awards

#### Value

Excellence Award - Junior - Silver Medal Sponsor: Youth Science Canada	\$300
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
<b>Total</b>	<b>\$2 300</b>