

## CWSF 2014 - Windsor, Ontario



### Caleb Winder

#### Star in a Jar

**Challenge:** Energy

**Category:** Intermediate

**Region:** Lambton County

**City:** Camlachie, ON

**School:** St. Clair S.S.

**Abstract:** On Earth, there are limited ways of sustaining nuclear fusion reactions. One way is through a process called Inertial-Electrostatic Confinement (IEC). This utilizes ion-acceleration grids to confine a high energy plasma. These reactors are very inefficient, so it was theorized that improved grid shapes would improve the efficiency. It was found that an electro-magnetic field generating grid would confine the plasma with a higher efficiency.

#### Biography

Hi! I'm Caleb Winder, a grade 9 student at St. Clair S. S. in Sarnia, Ontario. This is my first year attending the CWSF. Aside from Science Fair, I recently concluded a season playing for Sarnia Major Bantam AA hockey team and I'm currently on the Michigan Young Guns U14 AA baseball team. I'm also a member of the Bluewater Boxing Club, where I train 3-4 nights per week. Other than sports, I also enjoy participating in the University of Waterloo's math contests (Pascal & Fryer), as well as acting in a local community theatre production. Originally, I started doing Science Fair projects in Grade 7 after my teacher, Ms. Feniak, encouraged me to participate. My grandfather, a retired engineer, has been a great mentor for my projects, with his knowledge of high voltage wiring and insulation. In future science fairs, I would like to build the world's first amateur fission reactor, using a thorium, subcritical, breeder design. When I'm older, I would like to play university hockey and get a Ph. D. in nuclear physics. I'm very excited for the opportunity this year at CWSF!

#### Awards

#### Value

Excellence in Astronomy Award - Intermediate Sponsor: Royal Astronomical Society of Canada	\$750
Excellence Award - Intermediate - Bronze Medal Sponsor: Nuclear Waste Management Organization	\$100
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
<b>Total</b>	<b>\$1 850</b>