

# CWSF 2014 - Windsor, Ontario



## Jack Mogus

### Jocks, Girdles and Guards - A Dilatant Anomaly!

**Challenge:** Innovation

**Category:** Junior

**Region:** Bay Area

**City:** Oakville, ON

**School:** Emily Carr Public School

**Abstract:** Hockey neck guards are ONLY designed to protect against laceration, and not injuries resulting from blunt force trauma; such as a puck to the neck. Understanding the flow behaviour of Non-Newtonian Shear Thickening Fluids, such as Oobleck, a superior neck guard was designed through experimentation and literature research on the properties of Liquid Armor; to amplify the protective capabilities of a projectile force.

#### Biography

My name is Jack Mogus and I am a 13 year old, grade 8 student at Emily Carr Public School. I have always been fascinated by the practical application of using scientific principles in solving everyday problems. As a former AAA hockey player for six years, I was perplexed by the lack of protective support current market neck guard's offer to hockey players. After sustaining an injury by a flying puck to the neck, I decided to investigate a design to improve the safety and life-saving capabilities of a neck guard using a Shear Thickening Non-Newtonian fluid. In the fall I will be attending an Acceleration Learning Program at a White Oaks Secondary School, with my future goal of pursuing a career in Engineering. In 2012, I founded an organization called 'Change by YOUth' which ignites positive change locally and globally through volunteerism, leadership and peace. I currently serve on several advisory and steering committees in my community and am trained as a workshop environmental facilitator for Earth Day Canada EcoMentors. In addition I have spearheaded an initiative to ship skates & hockey equipment to Aboriginal youth living in remote communities and to date have sent over 1,000 pieces.

#### 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>