

## CWSF 2016 - Montreal, Quebec



### Keaton Chadwick

#### Increasing S.I. Engine Efficiency Through Novel Combustion Chamber Geometry

**Challenge:** Environment

**Category:** Senior

**Region:** Peel

**City:** Brampton, ON

**School:** Chingacousy S.S.

**Abstract:** The purpose of this innovation is to improve combustion efficiency in four stroke spark-ignition engines. In the innovation, nearly half of the combustion chamber volume is relocated from the head to a toroidal (donut shaped) groove within the piston crown. The potential benefit of this is that it will increase swirl and turbulence during combustion, leading to faster flame speeds and therefore more complete combustion.

#### Biography

My name is Keaton Chadwick. I am a Grade 12 student at Chinguacousy Secondary School in Brampton, Ontario, and am part of the regional Sci-Tech program offered there. This is my third time attending the CWSF. Ever since I was little I have been taking things apart and building things, and to this day it is still my default pastime. Some examples of my projects include homemade motorbikes and electric bikes made using otherwise scrap engines and components. Modifying and improving the engines I use in these projects has been a main focus of mine, and I have been doing science fair projects on improving engine designs since middle school. In September I will be going to university for mechanical engineering.