

# CWSF 2018 - Ottawa, Ontario



## Teryl Bates

### A Fibonacci Solution ? Mitigating Landslides and Avalanches

**Challenge:** Innovation

**Category:** Intermediate

**Region:** Central Okanagan

**City:** Kelowna, BC

**School:** Kelowna Senior Secondary

**Abstract:** The purpose of this project was to deflect flows of dirt and snow using the Fibonacci Sequence pattern (0-1-1-2-3) to reduce structural damage. I have shown that trees or pillars arranged in the pattern can mitigate landslide and avalanche damage by reducing flow speed and depth at structure impact and flows did not wrap around to strike from behind like the more costly wedge barrier.

#### Biography

I am a grade 10 student at Kelowna Secondary School, Central Okanagan. Soccer, camping and gaming are my hobbies. Scouting has been a major interest since I was 6; now a 2nd year Venturer and have my Chief Scout Award. I am the S.T.E.M. robotics kit facilitator for the Southern Interior Geographic of Cascadia Council, and recently led a session at the Scouters' Conference, introducing adult volunteers to the kit. I also received commendation for running S.T.E.M. stations at the Canadian National Jamboree in Nova Scotia. Other volunteer work includes Junior Instructor at Geering Up UBC Engineering & Science for Kids ? Okanagan campus. I've always been intrigued by natural disasters and hope to one day help reduce potential damage and loss of life by engineering barriers to protect against the elements. This year's inspiration was the mathematical Fibonacci Sequence (0-1-1-2-3...) and the common disasters of landslides and avalanches. I challenged myself by increasing the size scale, testing outside in various weather conditions and utilizing trees placed in the Fibonacci pattern as an environmentally-friendly barrier system. My advice to others is that science is much easier and more enjoyable if you passionately explore what interests you and keep challenging yourself.

#### Awards

#### Value

Intact Climate Change Resilience Award - Intermediate Sponsor: Intact Financial Corporation	\$750
Excellence Award - Intermediate - Bronze Medal Sponsor: Youth Science Canada	
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
<b>Total</b>	<b>\$1 750</b>