

# CWSF 2012 - Charlottetown, Prince Edward Island



## Hayley Marie Todesco

### Tailings Transformation: Microbial Bioremediation of Oil Sands Tailings

**Challenge:** Environment

**Category:** Intermediate

**Region:** Calgary Youth

**City:** Calgary, AB

**School:** Queen Elizabeth Junior Senior High School

**Abstract:** This project investigated the effectiveness of compost, leaf litter and fertilizer as novel bioremediation agents. Microbial growth, biodiversity of microorganisms and hydrocarbon levels in oil sands tailings were monitored over six weeks. Backyard leaf litter was the most effective agent, reducing hydrocarbon levels by 60-70%. The results could be applied to reduce the impact of tailings ponds on the environment, wildlife and fresh water resources.

#### Biography

I have discovered an absolute passion for environmental science. I don't know where I got it from because neither of my parents have any interest in this area. When I was younger, I was never really exposed to science. Fortunately, I went to the public viewing of a science fair for the first time when I was nine and my passion has grown since then. Over the last six years, I have been searching for a specific area of environmental science that I want to spend the rest of my life researching. Through this year's project, I think I may have found it. My previous projects explored the areas of atmospheric science, renewable energy and geology. I've always wanted to do a project on bioremediation and I was given the opportunity to this year. Working on bioremediation has been the most fulfilling and fun project I have done so far. I hope to use the skills that I have learned this year in a career in this area. I am very excited to be participating in the Canada Wide Science Fair and I look forward to an amazing experience.

#### Awards

#### Value

Challenge Award - Environment - Intermediate Sponsor: Encana Corporation	\$750
Excellence Award - Intermediate - Gold Medal Sponsor: Youth Science Canada	\$1 500
Western University Scholarship Gold Medallist - \$4000 Entrance Scholarship Sponsor: Western University	\$4 000
<b>Total</b>	<b>\$6 250</b>