CWSF 2014 - Windsor, Ontario

Chloe Freeman

Cellphone Distractions: A Response-Time Analysis

Challenge: Discovery
Category: Intermediate
Region: Vancouver Island
City: Victoria, BC
School: Glenlyon Norfolk School
Abstract: To model distracted driving, this study looked at how various functions, talking, texting, planning and playing games on a smartphone affected reaction times. Testing involved dropping a ruler vertically and having the subjects catch the ruler while they were distracted by a smartphone. Results indicate that there is significant difference between genders, but not between functions on a smartphone.

Biography

Hi, my name is Chloe Freeman and I am a 14 year old from Vancouver Island. I am a member of my school debate team, field hockey team, sailing team, and performing arts group. Outside of school, I am a competitive swimmer and an aspiring baker. I also enjoy spending time with my friends, my dog, and at the beach. I am a regional champion in field hockey and debate. I heard the horrible statistics of distracted driving, I thought I could do a project relating to this topic. In the future, I think testing other aged people as well as adding different distractions would enhance the quality of my project. The advice I would give other students is to have fun and pick a topic you are interested in.

CWSF 2014 - Windsor, Ontario

Duncan Silversides

Deciding the Point: A New Curling Measuring Stick Revealed

Challenge: Innovation
Category: Intermediate
Region: Vancouver Island
City: Victoria, BC
School:
Abstract: In the sport of curling, when there are two rocks that appear to be the same distance from the center, they are measured to see which rock is closer. Curlers use a mechanical measuring stick that is over 2 meters long. I have designed, built, programmed and tested an Electronic Measuring Stick that is smaller, faster and less expensive than the current measuring stick.

Biography
Duncan lives in Victoria BC,on the south end of Vancouver island. He is part of a competitive robotics team that has participated in FIRST World Championships. He used CAD software to design a syncro drive system for his team's robot. Duncan enjoys biking, walking through the Royal Roads forest, and Curling. He is currently in grade 10 and in his second year of the Curling Academy program at Esquimalt HS. For a future career, Duncan is considering working as a an engineer. He started thinking about his project after the Mens' World Curling Championship was held in Victoria in 2013. He had a opportunity to use competition curling rocks which use a sensor to indicate hog line violations. Duncan wanted to find other ways to introduce technology into his favourite sport. Duncan is very excited to be participating in his first Canada Wide Science Fair and he is looking forward to getting to see Windsor for the first time.

Awards	Value
Excellence Award - Intermediate - Bronze Medal Sponsor: Nuclear Waste Management Organization	$100
Western University Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: Western University	$1 000
Total	$1 100

CWSF 2014 - Windsor, Ontario

Nathan Kuehne

Early Cancer Detection: A Fluorescence-Based Approach

Challenge: Health
Category: Intermediate
Region: Vancouver Island
City: Victoria, BC
School: Glenlyon Norfolk School

Abstract: A fluorescence procedure was optimized to identify the acetylated product of the pharmaceutical amantadine, as a biomarker for some tumour-based cancers. Extracted urine samples containing acetylamantadine exhibited a quenching of fluorescence when dye in a host-guest complex was displaced by the acetylamantadine, thus indicating cancer cells were present. This procedure points to the possible widespread use of amantadine as an efficient, early cancer detection method.

Biography

I live in Victoria, British Columbia, and attend Glenlyon Norfolk School. My interests include piano, basketball, and Ukrainian dance. I speak five languages to some level, and enjoy learning new ones. I have received awards for academic achievement, public speaking, science, and dance. I am honoured to be a finalist at the Canada-Wide Science Fair for the second time. The need for cancer research is vital, as one in four Canadians are diagnosed with cancer at some point in their lifetime. In speaking with friends, family, and some researchers in the field, I discovered that there are very few viable mass-population screening systems for hard to detect tumour-based cancers. I was able to design a simple, relatively inexpensive, and quick test that could identify the presence of multiple types of tumour-based cancers. I plan to refine the sensitivity and specificity of this test in the future. My advice to students thinking about doing a science fair project is: absolutely, go for it! Although it can be great deal of work, once you are done, and you have the opportunity to present your work, it is all worthwhile and you will have learned so much along the way.

Awards	Value
Canadian Society for Medical Laboratory Science Award Sponsor: Canadian Society for Medical Laboratory Science	$750
Challenge Award - Health - Intermediate Sponsor: Canadian Institutes of Health Research	$750
Excellence Award - Intermediate - Gold Medal Sponsor: Youth Science Canada	$700
Western University Scholarship Gold Medallist - $4000 Entrance Scholarship Sponsor: Western University	$4 000
Total	$6 200

CWSF 2014 - Windsor, Ontario

Vicki Kleu, Austin Sawyer

Oil RiDD'rs: Fully Biodegradable Booms for Oil Spill Recovery and Containment

Challenge: Environment
Category: Senior
Region: Vancouver Island
City: Victoria, BC
School: Lambrick Park Secondary
Abstract: An inexpensive adsorbent boom that picks up over 32 mL of motor oil per gram of fibre was built. Approximately 90% of the adsorbed oil can be recovered. Residual oil can be washed out using canola oil. Heat of combustion tests done on soil near the buried fibre showed that the oil did not migrate with water movement in typical watering conditions.

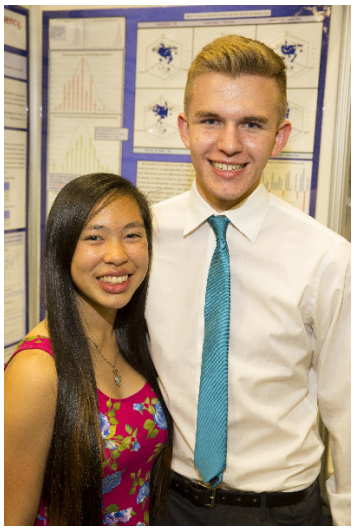
Biographies

Vicki - My name is Vicki Kleu and I am a grade 12 student at Lambrick Park Secondary School. I've lived in Canada, more specifically Victoria, BC., for seven years. My South African accent, though still present, is now mingled with a Canadian drawl. This is my sixth year participating in science fair and my fourth time attending the CWSF. I now spend more waking hours in a lab during science fair season than in my own house! When not in the lab, I can be found actively engaged in leadership projects or dancing. Though my career choices are pointing me toward being a pediatrician, focusing in oncology or cardiology, I am also passionate about the heal...

Austin - My name is Austin Sawyer and I am from Victoria British Columbia. This year my partner and I were inspired to investigate the possibilities in the field of oil spill clean up. This stemmed from the proposed construction of the Northern Gateway Pipelines, making large oil spills an extreme possibility in our own backyard. Ever since my first Canada Wide in grade eight I have been memorized by science. Science fair is a phenomenal way to find your true passion and change the world through invention. Although loving science, sports and music are also a focal points in my life. I enjoy playing soccer, basketball, track and field, and guitar. I wo...

Awards	Value
The Manning Innovation Achievement Award Sponsor: Ernest C. Manning Awards Foundation	$500
Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization	$100
University of Ottawa Entrance Scholarship Senior Bronze Medallist - $1000 Entrance Scholarship Sponsor: University of Ottawa	$1 000
Western University Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: Western University	$1 000
Total	$2 600

CWSF 2014 - Windsor, Ontario



Andrea Chan, Matt Treble

Using the Literacy Cube to Model Student Fluency, Comprehension and Numeracy

Challenge: Discovery
Category: Senior
Region: Vancouver Island
City: Victoria, BC
School: Lambrick Park Secondary

Abstract: A literacy cube with axes of fluency, numeracy and comprehension was used to look for patterns in grade 8 students' literacy skills. Then, using a SEE (following along as text is read) SAY (choral reading as a class) and DO (individual silent reading) approach, shifts along the literacy cube were tracked. SEE SAY DO significantly improved comprehension scores but not fluency scores.

Biographies

Andrea - Hello! My name is Andrea Chan and I'm a grade 11 student at Lambrick Park Secondary School. My partner and my first science fair project sparked our love to improve reading for youth. This year, we wanted to see if we could use fluency, numeracy and comprehension scores to place Grade 8's on a 3-D grid that could possibly show types of interventions needed on each student. Aside from being a geek with my nerdy partner, I competitively row at a community rowing club. I hope to study in either psychology or a science in post secondary. But, hold on right here. What is a biography without typical facts about me? My nickname is Andweeb. I love ca...

Matt - My name is Matt and I am a grade 11 student at Lambrick Park Secondary School in Victoria, BC. I'm a swim instructor at a local pool and love working with youth; which is a reason why I did this project that involved reading with Grade 8 students. My pals and I lead Anti-Bullying workshops for middle school classes (although we target Grade 8's). I'm stoked to have worked with my nerd-in-crime partner, Andrea Chan, on this project this year. Most of the time my partner and I get along, but she also forces me to do a lot of annoying things like join our school rowing team and order cheesy bread (which she does not share) when we work on our sc...

Awards	Value
Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization	$100
University of Ottawa Entrance Scholarship Senior Bronze Medallist - $1000 Entrance Scholarship Sponsor: University of Ottawa	$1 000
Western University Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: Western University	$1 000
Total	$2 100

science is serious fun

Youth Science Month
Mois des jeunes scientifiques

MARCH 2013

Celebrate Canada's Young Scientists!

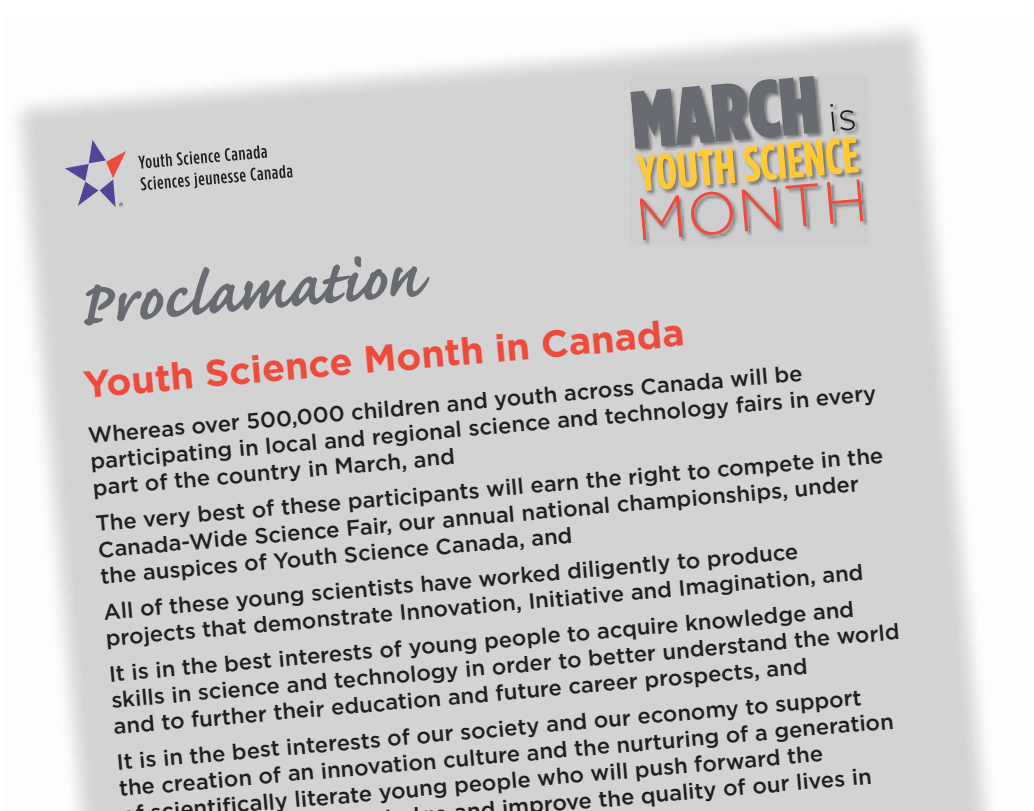
Every fall, Youth Science Canada calls on students across the country to take up the challenge of doing a science project. More than half a million will do a project this school year and about 25,000 of these will compete in one of 100 regional science fairs held across Canada this winter and spring.

The Canada-Wide Youth Science Challenges target seven issues that matter to Canadian youth, the future of our country and the world – Discovery, Energy, Environment, Health, Information, Innovation, and Resources. Young Canadians are making the world a better place by doing a project.

Along the way, they tell us, they learn a lot, make friends, challenge themselves, and have fun as they "do real science." And with nearly $1M in awards, prizes, trips, and scholarships available, it's serious fun!

Youth Science Canada has proclaimed March as Youth Science Month. At press time, Youth Science Month has also been proclaimed or endorsed by British Columbia, Manitoba, Northwest Territories, Prince Edward Island, and Saskatchewan.

We invite schools, teachers, students, and families to join us in celebrating the imagination, initiative and innovation of Canada's young scientists by visiting their local science fair. To find the fair closest to where you live, see the back of the enclosed poster, or visit **youthscience.ca** and click on **Find Your Fair**.


Youth Science Canada
Sciences jeunesse Canada

MARCH is YOUTH SCIENCE MONTH

Proclamation

Youth Science Month in Canada

Whereas over 500,000 children and youth across Canada will be participating in local and regional science and technology fairs in every part of the country in March, and

The very best of these participants will earn the right to compete in the Canada-Wide Science Fair, our annual national championships, under the auspices of Youth Science Canada, and

All of these young scientists have worked diligently to produce projects that demonstrate Innovation, Initiative and Imagination, and

It is in the best interests of young people to acquire knowledge and skills in science and technology in order to better understand the world and to further their education and future career prospects, and

It is in the best interests of our society and our economy to support the creation of an innovation culture and the nurturing of a generation of scientifically literate young people who will push forward the boundaries of our knowledge and improve the quality of our lives in the future, and

All Canadians should be supporting and celebrating our young scientists.

Therefore, Youth Science Canada proclaims that March 2013 is

Youth Science Month in Canada

So proclaimed March 1st, 2013 by
Youth Science Canada
Len Reimer, BEd, MEd
Chair

Are your students learning Smarter Science?

Your students could be DOING science, not just talking about it!

Smarter Science is a framework for K–12 science teaching and learning, and for developing the skills of inquiry, creativity, and innovation in any curriculum unit. Students in Smarter Science classrooms learn to DO science – not just talk about it – by questioning, and investigating. Smarter Science is used by thousands of teachers – in every grade – who are engaging their students in real science.

Smarter Science workshops prepare teachers to successfully implement scientific inquiry in their classroom. Our team has trained teachers from coast to coast – in English and French. We currently offer three full-day workshops:

1. Introduction to Smarter Science
2. Assessment and Evaluation of Inquiry
3. Innovation and Creativity through Inquiry

continued overleaf

In this mailing

Please post or share this newsletter and the contents of this mailing with your science colleagues and students:

Eureka! Canada poster: Canadian Institutes of Health Research's Eureka! Canada Facebook page highlights Canadian health researchers.

Youth Science Month poster: Youth Science Canada's invitation to submit a project, sign up as a volunteer or judge, or visit your local science fair, lists over 100 regional fairs from coast to coast to coast

Canada-Wide Youth Science Challenges

Youth Science Canada wants to engage youth in inquiry and critical thinking through science by answering a question or solving a problem that focuses on issues that are important to them, Canada's future and the world.

Discovery
Create new fundamental knowledge based on your curiosity by asking a question and using the techniques of scientific inquiry to develop an answer.

Energy
Improve our use of current energy sources, enable the transition to alternative energy sources, or reduce our energy footprint.

Environment
Reduce our impact on, improve our understanding, and ensure the quality of water, air, soil, and the diversity of living things.

Health
Increase our understanding of the human body, or apply science and technology to improve health, control disease, or support an aging population.

Information
Enhance communication and our use of information using digital and networking technologies, or applications of new media.

Innovation
Combine scientific principles with your creativity to develop a new material, structure, device, or system to solve a problem or improve an existing solution.

Resources
Develop better ways to use our natural resources that provide sustainable sources of food, products, or prosperity.

Canada-Wide Science Fair 2012 Platinum Award Winners

A week-long national event each May, the Canada-Wide Science Fair (CWSF) brings together 500 top young scientists from grades 7-12 (Sécondaire I-V and Cégep in Québec) from across the country to compete for $1 million in cash, scholarships and exclusive science opportunities. These finalists are selected at the 100 regional science fairs across the country, mostly in March and April, leading up to the national competition.

Below are profiles of the three Platinum Award winners at CWSF 2012 held in Charlottetown, Prince Edward Island.

For information on CWSF 2013 in Lethbridge, Alberta, May 11-18, visit cwsf.youthscience.ca.

La quête de l'ombre jovienne

Everyone knows that the sun casts a shadow during the day. At night, you might have noticed that the moon and Venus are bright enough to cast shadows, but Laurent Joli-Cœur (15) of Montreal wondered whether Jupiter, the next brightest object in the night sky, could also be shown to do this. The challenge brought together his two passions – astronomy and photography – in a quest to be the first ever to demonstrate this phenomenon.

Over the course of eight months he designed, built, and tested a device – like a sundial combined with a digital camera – that he could accurately aim at Jupiter. When it was finally ready, he took a series of time exposures over the course of a long, sleepless, and frosty November night in the Mont-Megantic International Dark Sky Reserve east of Sherbrooke.

It worked, but to be sure, he rotated the apparatus slightly, and the shadow moved, demonstrating that the light was coming from a single point. He also pointed it away from Jupiter and found no shadow, eliminating the possibility that the shadow was caused by the overall glow of the night sky.

Laurent won a total of five awards at CWSF 2012, including the Discovery Challenge Award (Intermediate), Platinum Award for Best Intermediate Project, and the Best Project Award, presented by BlackBerry.

Laurent Joli-Cœur
Secondary 3 (Grade 9)
Collège Jean-de-Brébeuf
Westmount, QC

Computational Methods for the Screening of Novel Neuraminidase Inhibitors

Eric LeGresley
Grade 11
St. John Brebeuf School
Chilliwack, BC

Eric LeGresley (15) of Chilliwack, BC first became interested in antivirals following the 2009 H1N1 flu outbreak. Influenza viruses cause illness ranging from "the flu" to deadly pandemics, but as these viruses become more resistant to current antivirals, new ones need to be developed.

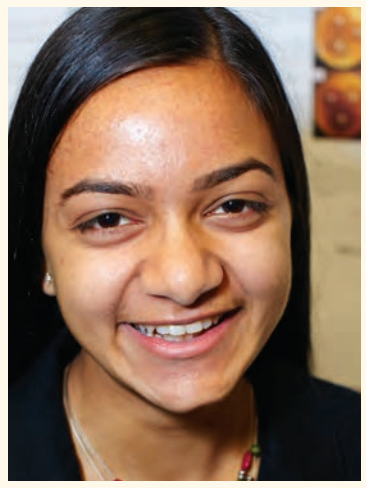
The traditional lab-based approach to identifying and testing antivirals is slow, tedious, and expensive, so increasingly researchers are turning to computers to design and test candidate drugs. As part of a concurrent studies program between his high school and Simon Fraser University, LeGresley developed a computational chemistry algorithm to assess how well a potential antiviral will prevent an influenza virus from proliferating. His algorithm reduces the screening time from six months to a half-day.

In addition to the Platinum Award for Best Senior Project, presented by BlackBerry, the 15 year-old grade 11 student won the Innovation Challenge Award (Senior), a Manning Young Canadian Innovation Award, and entrance scholarships to five Canadian universities. He notes, "This kind of research is exciting because you can see its significance for the real world. My two pieces of advice for other students pursuing research are: work hard and have fun."

Uncovering the Cardiac and Gastrointestinal Safety of Two Amyloid-ß Inhibitors

When 13 year-old Maya Burhanpurkar's grandfather passed away after years of suffering from Alzheimer's disease, the grade 8 student decided to learn more about the disease and potential cures. She read that Alpha Lipoic Acid and Melatonin, both non-prescription supplements, had recently been shown to slow the formation of fibrils in the brain that are characteristic of Alzheimer's disease, but wondered whether these substances might aggravate heart or digestive problems that also affect elderly populations.

As there were no published studies on the cardiac or gastrointestinal effects of the two substances, she set out to design two experiments that could be done at home. She tested cardiac safety using water fleas (*Daphnia*) and gastrointestinal safety using *Lactobacillus acidophilus*, bacteria found in the human gut – and commonly used to make yogurt.



Maya Burhanpurkar
Grade 8
Codrington Public School
Shanty Bay, ON

She found that both substances appear to be safe for the heart, Melatonin appears safe for the digestive system, but Alpha Lipoic Acid would likely cause gastrointestinal issues.

Maya won the Platinum Award for Best Junior Project, presented by BlackBerry, as well as the Discovery Challenge Award (Junior), The Actuarial Foundation of Canada Award, and a Western University entrance scholarship.

Are your students... continued

Get started with Smarter Science:

- Book a professional development workshop for your school or school board at competitive rates;
- Order classroom-ready framework posters, Steps to Inquiry poster sets, and the 54-page teacher resource booklet, *Introducing the Framework* at **smarterscience.ca**;
- Download free PDF versions of the framework poster, *Steps to Inquiry* poster sets and *Introducing the Framework* at **smarterscience.ca**;
- Join the Smarter Science online community of educators who share inquiry-based teaching/learning experiences and resources;
- Invite us to your provincial science teacher conference;
- Participate in our annual summer institute.

All resources and workshops are available in English and French.

For more information, visit **smarterscience.ca**

To book a workshop, call our toll-free number: 866-341-0040.

Youth Science Canada gratefully acknowledges its national awareness partners

BlackBerry
NSERC CRSNG
SYNAPSE CIHR IRSC

Youth Science Month – Serious Fun!
is published each March by Youth Science Canada for Canadian educators.

Youth Science Canada exists so Canadian youth are engaged through science in inquiry and critical thinking. To learn more about our programs, visit youthscience.ca.

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Sciences jeunesse Canada

BlackBerry PRESENTS/PRÉSENTE
CWSF ESPC
Canada-Wide Science Fair Expo-sciences pancanadienne

May 11-18, 2013
Lethbridge, Alberta

Youth Science Canada's
52nd annual
Canada-Wide Science Fair

University of Lethbridge
1st Choice Savings Centre
Lethbridge Alberta

School groups* and public welcome:

Sunday May 12 - 2:00pm-4:30pm
Monday May 13 - 9:00am-12:00pm
Thursday May 16 - 9:00am-12:00pm
Friday May 17 - 9:00am-12:00pm

*(Mon. & Thu. - advance booking required)

cwsf.youthscience.ca

Photo credits: John Hasyn, André Van Vugt/Giant Vision