

# 2017 A+ for Energy Project Summaries



## **A.E. Cross School,** Calgary

Ms. Zlata Kunze and Ms. Sanimar Sarpal  
Grade 9

### **Energy, Editorials & Exhibits,** \$10,000

Students will learn about energy issues as they occur by researching editorials, political cartoons, podcasts and social media memes. Students will explore the relationships between government, the economy, energy and how it all affects our quality of life. Working closely with a political cartoonist, students will analyze and create written editorials, political cartoons and social media memes. The project will culminate in an exhibit to share opinions and biases about energy with the community.

## **Calgary Girls' School,** Calgary

Ms. Leith Monaghan and Mrs. Lori Olson  
Grades 5 and 7

### **Empowering Women Through Sustainable Energy,** \$10,000

The energy sector is predominantly a male driven industry, as women face discrepancies in education and career prospects. This gender gap is amplified in developing countries where poverty reduces energy access for all, but specifically women. Students will explore current models of energy development through community case studies. Once the students have consolidated their learning, they will then look at solutions focused on sustainable renewable technology.

## **Cappy Smart School,** Calgary

Mr. Florin Panaitescu and Ms. Jacci Christensen  
Kindergarten to Grade 5

### **Energize Your Ride,** \$10,000

Students will gain theoretical knowledge about electricity by first: generating questions; looking for answers using books, websites and videos; discussing with experts in the energy field; and recording / discussing their findings. Second, students will be guided to design an experiment to manipulate variables to investigate the efficiency of transforming movement into electricity. Third, the students will analyze the data and recommend the best ways to configure gears to produce electrical energy. Finally, the learners will share knowledge with various audiences.

## **Central Memorial High School, Calgary**

Ms. Erin Boukall

Grades 10 to 12

### **You Are What You Eat: Going Green in the Kitchen, \$10,000**

Students will create a 'Tower-to-Table' movement in the school by using aeroponic Tower Gardens that produce higher yields faster and use less energy and less water to do so.

Students will learn about the impact of energy in the food industry, about where food comes from, global footprints of imported foods, and what students can do as sustainable consumers to support local producers and products. Composting and biofuel reactors will be used to help the school reduce its environmental footprint.

## **Edison School, Okotoks**

Mr. Carlos Schroeder

Grades 8, 9, 11 and 12

### **Renewable Energy on the School Yard, \$10,000**

Junior and Senior high students will explore different energy sources, specifically renewables, used to generate electrical energy. They will devise a variety of different designs for portable wind turbines and solar panels that will be built and tested on the school yard. The final models will be displayed and demonstrated to the school community at the end of the year.

## **George McDougall High School, Airdrie**

Ryan Haggarty

Grades 9 to 12

### **Global Encounters, \$10,000**

In partnership with the Telus Spark Prototyping project and community experts, students will learn about several forms of energy. They will research coal energy, create biodiesel while examining its uses, learn more about alternative energy sources such as wind and solar energy, and finally, will look at hydroelectricity and its future. There will be four phases: the design thinking process at Telus Spark, prototyping with community experts, field experiences, and the display of learning at Telus Spark.

## **The Hamptons School**, Calgary

Joni Stetz and Mr. Ed Claussen  
Kindergarten to Grade 4

### **Stop the Plastic!** \$10,000

With the help of an artist, books and parents, students will focus on how much energy goes into the production of plastic water bottles, and hopefully look at water and energy differently. Understanding the importance of water and our need to protect and conserve it, the students will determine how much water and energy is wasted through traditional water fountains and then see the difference when a new water bottle filling station is installed. They will also see how much energy can be conserved.

## **Hugh A. Bennett**, Calgary

Ms. Nadine Duque, Ms. Sarah Byrne, Ms. Rachel Makowski and Ms. Donna Wang  
Kindergarten to Grade 4

### **Energizing Ambassadors Through Making!** \$10,000

Students will be challenged to participate in a walk/bike/in-line skate to school challenge. Students will track transportation methods and work together to develop solutions. Using the school's MakerSpace, classes will examine what it means to be energy efficient and create a prototype of the community reflecting this. Acting as energy conservation experts, students will research, plan, design and create an energy efficient community, documenting learning through twitter, journaling, and photographs.

## **Highwood School**, Calgary

Mrs. Vicky Law  
Kindergarten to Grade 4

### **Pocket Full of Sunshine Solar Projects**, \$10,000

Grade three and grade four students will explore the importance of energy conservation by studying solar energy and building solar projects (including solar ovens, race cars, windmills and greenhouses) and solar panels in the school. Students will develop environmental literacy as they learn how to conserve energy.

## **Kate Chegwin School**, Edmonton

Mr. Colin Lacey

Grades 6 to 10

### **MakerSpace of Energy**, \$10,000

Students will have the opportunity learn about alternative energy using solar panels and wind turbines in the school's MakerSpace. They'll also have the chance to tinker with innovative technologies to learn how energy is used in different devices and will learn about various energy perspectives in class. To help raise awareness about energy efficiency, conservation and water, students will design an awareness campaign featuring their designs on stickers, buttons and posters around the school.

## **Mangilaluk School**, Tuktoyaktuk

Mr. Ephraim Warren and Miss Krista Cudmore

Kindergarten to Grade 12

### **Fruitful Tundra - Land of Life**, \$10,000

In this remote northern community, there is tundra and permafrost all year making it difficult to have access to nutritious fruits, vegetables, and plants. Through this project, classes will aim to grow vegetation inside using soil-free seed pods in an aero-garden. Students will learn about energy reduction, growth, and healthy living and will share their knowledge with the broader community.

## **Nelson Mandela High School**, Calgary

Mr. Jeff Thompson and Mrs. Jessica Bates

Grades 10 to 12

### **Solar Greenhouse Gardening**, \$10,000

Students will participate in the design, construction, and implementation of a solar greenhouse located on the rooftop patio of the school. Students will discover the most effective ways to create a passive solar greenhouse, how to add solar panels to the adjacent roof section which will store energy to offset the energy needed to run heaters on the very coldest days. The food grown will be used in the school's culinary department, which will offset the energy costs of shipping in food from factory farms.

### **New Myrnam School**, Myrnam

Grades 7 to 12

Mrs. Adrienne Owen, Mr. Keith Gamblin, Mrs. Danielle Eriksen and Mr. Michael Randall

### **Sustainable Greenhouse & Garden**, \$10,000

Students will study renewable and alternative energy sources by designing and implementing a passive solar heating system to keep the school's greenhouse operating throughout as much of the school year as possible, enabling the students to grow a variety of crops to be used at the school. Students will also spearhead the creation of an environmentally sustainable and self-sufficient green space on the school grounds, which will function as an evolving outdoor learning environment as well as a way for students to learn first-hand about sustainable food production and nutrition.

### **R.J. Scott School**, Edmonton

Ms. Kirsty Woods

Grades 4 and 5

### **Melding da Vinci's Creativity with Energy**, \$10,000

Through the weaving of year-long projects, students will be challenged to develop their own unique theatre performances, to write and perform their own songs, and to create works of art through photography, using the common thread of ENERGY. Students will be encouraged to make personal changes that address their awakening awareness of their own energy consumption.

### **St. Rita Elementary**, Calgary

Ms. Karen Strand

Kindergarten to Grade 6

### **Let's Get Greener**, \$10,000

Students will explore energy conservation and will develop environmental literacy by gardening outdoors using permaculture and indoors using hydroponics. Students will learn about the energy used to transport and process produce as it travels from farms to our plates. Classes will conserve water using rain barrels and drip irrigation while harnessing the natural energy of the sun to grow outdoor plants and indoor plants. The school will reduce its carbon footprint around the school by minimizing the use of electric lights, by using less water and by recycling.

## **The Renert School**, Calgary

Ms. Marina Barreto and Mr. Kevin Cammack  
Kindergarten to grade 6

### **Energizing Machines and Robots – Extended, \$10,000**

Students from K-6 will be introduced to energy concepts through different LEGO sets. They will build and test models such as: a solar car and a wind turbine to learn how energy flows in mechanical systems; a robot arm to investigate how to make the most energy efficient sequence of strokes; and robots to model reality and program. The activities include the study of sources of energy and the conversions between them, and will open opportunities to explore how different energy sources impact the environment.

## **Richmond Elementary**, Calgary

Mrs. Stacy Hutchens  
Kindergarten to Grade 6

### **Renewable Energy through STEM, \$10,000**

K to grade six students will have opportunities to investigate renewable energy topics through a variety of inquiry and STEM activities. Students will be empowered to use design thinking to explore alternative energy sources and showcase their understanding by creating solar powered robots and racecars, designing with K'Nex, creating their own energy with a power pedaled bike or Von de Graff generator, and building wind turbine and hydroelectric models. They will understand how different energy sources can provide creative solutions to complex problems faced in the real world.

## **River Valley School**, Calgary

Ms. Lana Skauge  
Kindergarten to grade 6

### **The Legacy Continues, harness the wind!, \$10,000**

Students will build and design moveable wind generated objects, appreciating wind's energy function and benefits. Comparing wind energy efficiency and the role it played past and present will provide real world experiences. Students will create, perform and publish original dramatic plays based on their research. Plays will be designed with the intention to teach and encourage new visions for energy consumption and have a student written study guide.

### **St. Joseph School**, Coaldale

Mr. Zac Coupland

Grades 6 to 9

#### **Passive Solar Heaters and Spin Power**, \$10,000

Students will become more environmentally conscious by understanding the benefits and challenges of solar technology for heat and how it works alongside conventional energy sources. Students will design, build, test, and modify their passive solar heaters until they are satisfied they have done their best to harness the sun's power. Spin power goes a step further by providing students a way to make a difference using their own energy to charge personal devices with pedal power.

### **St. Mary's Elementary**, Lloydminster

Mrs. Nicole Blais and Mrs. Jessie Mann

Grades 4 to 7

#### **Super Sunny Robotics**, \$10,000

Students will be challenged to develop their knowledge of robotics and its growing effects on the energy industry. By programming a robot, powered by solar energy, students enrolled in the grade five to seven integrated math and technology program as well as Science 5 will directly investigate energy conversion and efficiency. Each group's robot will complete predetermined tasks and be assessed on their efficiency, power, and innovation.

### **St. Theresa Catholic School**, Sherwood Park

Mr. Kurt Davison

Grades 5 to 8

#### **Fitness Before Furnaces: Active Students Raising Classroom Temperatures!** \$7,000

This project will allow students to become energy sources and actively heat classrooms through exercise. This alternative heating will reduce the amount of conventional heat energy needed in classrooms. Students will create/track/document changes in classroom temperature that their exercise generates and make real-world connections to the impact of their choices. They will research the balance between energy production/consumption/conservation and share findings/successes with the community.

## **St. Theresa Catholic School**, Sherwood Park

Mr. David Stephens

Grades 5 to 8

### **Reach for the Star!!** \$10,000

With a focus on solar energy, grade 7 & 8 students will make the connection that sustainable energy choices today, impacts our world tomorrow. Students will monitor the school's current energy output and use portable solar panels and solar generators to help charge student hand held devices. They will also research sustainable energy practices, compare them to traditional methods and present their results at the 'Reach for the Star' fair, a project based learning exhibition.

## **Sundre High School**, Sundre

Ryan Beck

Grades 7 to 12

### **Polar Bear Express**, \$9,500

Students will use the Synchrotron at the Canadian Light Source (CLS) at the University of Saskatchewan to study osteoporosis in polar bears that have been exposed to PCB's and similar pollutants. Students will design the experiment and have the opportunity to make a genuine discovery using this intense light energy. In the process, students will learn about high energy physics and energy transformations with ties to curriculum outcomes related to energy in science classes.

## **Vernon Barford School**, Edmonton

Mr. Joshua Robbins and Mr. Kevin Murphy

Grades 7 and 9

### **Energy for Life**, \$10,000

Students will explore how energy can best support life in remote locations like new planets. By investigating lighting options for growing food and testing the reliability and efficiency of solar and wind power, students will gain valuable information that will allow them to design and build a prototype of a futuristic base that could support human life. Through three key investigations, students will discover new ideas and answers to how energy can be used, generated and conserved and will build aptitude towards problem solving.

## **Wainwright High School**, Wainwright

Mrs. Katherine Campbell

Grades 7 to 12

### **Solar Energy and Air Quality**, \$10,000

Students will investigate traditional energy sources, explore alternative energy sources, show examples of the use of solar energy, investigate the conversion of solar energy into chemical energy (plant growth via photosynthesis), and generate experiments that investigate the use of plants to remove carbon dioxide from the atmosphere.

## **Westwood High School**, Fort McMurray

Johnny Dulku

Grades 10 to 12

### **Aquaponic Mutualism: Using Sustainable Energy to Carry Out Urban Farming**, \$10,000

As the urban environment grows, so too does the energy footprint of food. The challenge of urban farming is how to make it 100% sustainable, including energy and water for photosynthesis, and fertilizer for the nitrogen cycle. Enter aquaponics, where plants use fish waste as a natural fertilizer. In this project, students will build a small urban farm to grow plants inside the classroom, using solar panels, artificial lighting, harvested rain and snow, a growing medium, connected aquarium and a pump. The goal is a demonstration of urban farming that is energy-neutral and waste-free.