



BY INSIDE EDUCATION

A+ FOR ENERGY

2018 PROJECT SUMMARY WINNERS

1. **St. Theresa Middle School** *Sherwood Park*

FITNESS INSTEAD OF FURNACES | \$5000

The project will allow students to become energy sources and actively heat classrooms through exercise thus reducing the amount of conventional heat needed in classrooms. Students will create/track/document changes in classroom temperature and calculate the measurable reductions in Greenhouse gas emissions that their exercise creates and make real-world connections to the impact of their choices.

2. **Edison School** *Okotoks*

GREAT BALLS OF ALGAE - CARBON CAPTURE IN ACTION! | \$5000

Algae are the first living organism to evolve photosynthesis – using carbon dioxide to produce energy, nutrients, and oxygen – and conceivably the original and most efficient carbon sink. Therefore, they could potentially play a crucial role in reducing carbon dioxide concentrations in our atmosphere. The primary purpose of this project is to motivate junior and high school students to explore mechanisms for carbon capture by growing algal cells in bioreactors.

3. **St. Paul Regional High School** *St. Paul*

CHARGER WARS! | **\$5000**

This competition challenges classes to power mobile devices using solar charging stations. kWh will be diverted from the grid and students will develop a thorough knowledge of solar power through a tangible and hands-on example of renewable energy generation.

4. **Tilley School** *Tilley*

“THE RAIN GAUGES”, “SOLAR EXPRESS”, “H2000’S”, “BLINDED BY LIGHT” | **\$5000**

The 2017-2018 grade three students met with the Superintendent of Schools and Associate Superintendent, Business Services in April 2018 after the Provincial Government announced the list of new schools. The students have four action research projects that they would like to complete, then present their findings to the board and the contractors in the 2018-2019 school year then make suggestions on how to make their new school more energy efficient.

5. **Kate Chegwin Junior High School** *Edmonton*

OUR GREATEST ENERGY SOURCE- THE SUN | **\$5000**

The goal of this project is to teach students to utilize our greatest energy source - the sun. Students will run experiments with mini solar panels, solar ovens, solar water heaters and learn about passive solar heating. Students will investigate changing different manipulated variables in their experiments to have the most efficient device. They will also be challenged to charge their cell phones or tablets with a solar charger and then calculate the savings using an energy meter when connected to the grid.

6. **Career and Technology Centre** *Calgary*

LED FOR STUDENT-BUILT AQUAPONICS SYSTEM | **\$5000**

The overall goal of this project is to convert old discarded technology into new and useful technology to grow food and to educate students about food and its relationship with water and energy. We will build a commercial aquaponics operation right here in our lab where we will grow various greens like kale and arugula for local restaurants with the help of LED grow lights.

7. Copperfield School *Calgary*

ROBOTS AND MODELS TO SOLVE ENERGY EFFICIENCY PROBLEMS IN THE COMMUNITY | \$5000

Students in Kindergarten through grade 4 will have opportunities to investigate how walking and wheeling to school helps to build a culture of energy efficiency within their community. Using data collected by students in the 2017-2018 school year through a student generated active transportation survey and school based air quality data, classes will use design thinking to explore and discover how to develop solutions and strategies to problems identified.

8. New Myrnam School *Myrnam*

DESIGNING RENEWABLE ENERGY SYSTEMS | \$5000

Students in grades 4 - 12 will work collaboratively to design and create renewable energy systems using solar, wind and biogas to produce power for our outdoor science lab. They will analyze the efficiency of each as a sustainable source of energy.

9. St. Patrick Elementary School *Taber*

STEM ITEMS FOR EXISTING SOLAR SET-UP! | \$5000

The main component of our project is to build on the investment by the province to expand Science, Technology, Engineering, and Mathematics (S.T.E.M.) education. S.T.E.M. and inquiry programs allow students to investigate different concepts using a hands-on, problem solving approach. It is an effective way to engage and inspire students about the Sciences. More specifically, the focus of our new S.T.E.M. program would be renewable energy technology and energy conservation solutions.

10. H.A Kostash School *Smoky Lake*

FARMLAND TO SOLAR FARM FEASIBILITY PROJECT | \$5000

Students will investigate how to increase efficiency in their homes and examine the possibility of converting farmland into a solar farm. The students will create model homes with wired lighting in parallel circuits. They will compare the efficiency of their home using led and incandescent light bulbs. The students will display their homes and findings during our Community Science and Math Literacy nights.

11. **Hughenden Public School** *Hughenden*

ENERGY KIT LABS | \$5000

Our project enhances opportunity to nurture inquiry and innovation, directly with our students and students from other schools within our division who connect with our teachers via video-conferencing. This programming is a win-win for all as schools who can't afford to have a teacher in their building to offer specialty sciences can access such programming through our school. Our project will enable us to purchase equipment and put together lab kits that can be used in our connecting schools; as well as resources to further enrich our elementary and junior high curricula.

12. **Bev Facey Community High School** *Sherwood Park*

IMAGINEERING CENTRE | \$5000

We are pleased to empower students in establishing a culture of sustainability by exploring renewable opportunities in wind, fuel cells, and biomass. Imagineering centre discoveries will be shared via social media, trade shows and formal presentations.

13. **Ecole Champs Vallée School & Michael Strembitsky School** *Edmonton & Beaumont*

SUSTAINING LIFE ON MARS | \$5000

It's hard to imagine a life on Earth without apparently abundant energy sources... but what if we had to settle where there were no sources of energy? Humans will be venturing out beyond Earth's gravitational pull once again with the intention of exploring and settling on new ground such as Mars and our Moon. How will we ensure that we have enough renewable, sustainable energy to power such a settlement and, in turn, enable students to develop a greater awareness of their own energy consumption here on Earth? Several different ideas have been proposed and we would like to examine two possibilities more closely - solar power and biofuel. In addition, we will be using micro:bits to program systems to sense the moisture level in the soil, light levels, etc. and set up automatic watering and LED lighting systems for classroom gardens, comparing plant growth in Earth soil to that in simulated Mars Regolith, to develop the best system for conserving what energy we do have.

14. **Taradale School** *Calgary*

ENGAGING WITH HEROES - WALKING ACROSS CANADA | **\$5000**

We have created a simple goal, combining the distance of all students walking trips to and from school to cover the distance across Canada, the goal set by Terry Fox. Our school is located in a very suburban area, resulting in many families using their cars for simple, everyday trips, rather than walking. This is especially noticeable during school drop off and pick up times, as traffic becomes a huge issue, both in terms of pedestrian safety and pollution produced by cars idling. Through the use of pedometers, students will be able to track and work towards increasing their activity through walking to school, which will also help us reach our goal of walking the distance of Canada.

15. **Louise Dean School** *Calgary*

RENEWABLE ENERGY RELIABILITY STUDY AND LONG TERM MONITORING PROJECT | **\$5000**

The goal is to allow students to determine how solar irradiance and changing wind speed can affect the use of solar and wind power as a source of grid power as well as monitor weather and CO2 levels over time, relating this to climate change.