



ENERGY EDUCATION TOOL KIT FINAL REPORT

Inside Education's ongoing commitment to energy education resulted in the development of a unique project for the 2020-2021 school year - **The Energy Education Tool Kit**. In January 2021, **79 schools** from **40 communities** across Alberta received an Energy Education Tool Kit.

The Energy Education Tool Kit contains materials and activities for students to engage with and learn about energy in an interactive way. The tool kit was designed to meet a growing demand for support during the pandemic when outside guests were not allowed to visit schools. Schools applied to receive a kit along with a teacher professional development session to ensure a strong foundation of energy and workshop the kit contents.



Thank you so much for the kit! I am so excited to start using this kit in my classroom and teach my science colleagues to use it too!

**BRAEDEN ELENKO
DR. GEORGE STANLEY SCHOOL**



TOOL KITS

Each Energy Education Tool Kit included tools, models and gadgets to allow students to explore energy education in a hands-on way, as well as learning resources and activities to guide teachers and students through the various topics and activities. Each Tool Kit also included a Teacher's Guide that provided a general overview of the Tool Kit and its materials. Although the Energy Tool Kit idea was developed due to the COVID-19 situation, it has become clear through feedback and classroom impact testimonials that this type of learning resource is incredibly valuable at any time.

The Energy Tool Kit can be used on an ongoing basis for multiple classes within each school, which will extend its impact for years to come. To receive a kit, teachers submitted an application form that asked why they wanted the kit and how it would be used at their school. Many more applications were received than we could accept, indicating that this type of learning resource is in high demand. A selection process ensuring variety in grade levels and broad geographic representation was engaged with 6 kits reserved for distribution to Indigenous schools.



The Tool Kits were designed to lead teachers and students through eight key energy education topics:

- 1 | Natural Resources for Energy
- 2 | Canada's Energy Landscape
- 3 | Electricity Generation
- 4 | Renewable & Alternative Energy
- 5 | Experience Fossil Fuels
- 6 | Energy Efficiency vs Conservation
- 7 | Energy Storage
- 8 | Stewardship

The content and activities were developed for a grade 4-9 audience, with many opportunities for adaptation depending on each class's abilities, knowledge level, and set up.

The Energy Education Tool Kit content linked primarily to the Science and Social Studies curriculum, with extensions into Math, CTS, Outdoor Education, and more.



TEACHER PROFESSIONAL DEVELOPMENT PROGRAM

All teachers that received an Energy Education Tool Kit attended an online Professional Development session, Friday January 29, 2021. The PD program gave teachers the opportunity to learn more about Alberta's energy landscape from industry experts, and learn about the tools and activities in their Energy Tool Kits from Inside Education staff.

THE ENERGY PANEL FEATURED:

Dr. Bing Cao (University of Alberta, Nanode Battery)

John Nowostawski (ENMAX)

Dr. Julianna Leung (University of Alberta)



The level of engagement was very high during the Energy Panel. The teachers submitted endless questions about the energy topics that interested them most, including electric vehicles, nuclear energy, geothermal energy, and lithium battery storage. The panelists did a fantastic job addressing the teachers' questions in a thorough and digestible way.



This has been one of my favourite PDs in my career. It is relevant. Participants walk away with tools they can begin using immediately. It has the potential to help shape the future. It will be inspirational for students. Thank you!

*KRISTA SHANDRO
DR. LILA FAHLMAN SCHOOL*

During the demonstrations, teachers followed along with their own kits, which made for a fast-paced, fun and interactive experience. Some of the activities demonstrated included building an electromagnet, connecting a multimeter to a hand generator, playing the Energy Moves board game, and measuring surface temperatures with an infrared thermometer. The teachers commented enthusiastically and continued to ask questions throughout the demonstrations, indicating a high level of engagement throughout the entire PD.

PD FEEDBACK

In order to evaluate the effectiveness of all Inside Education professional development programs, a survey is sent out after the program to gather teacher feedback, comments and program impacts. For the Energy Education Tool Kit PD Program, 52 post-program surveys were collected and the key findings and comments are summarized below.

Do you have any comments about your Energy Education Tool Kit PD experience?

"Thank you Inside Education. Working in a small, rural school can often feel isolated. Your PD is so integral to help all teachers feel connected and supported."

-Janine Morrish, David Thompson High School

"Thank you Inside Education for this invaluable resource. This resource will be a great tool for supporting learning and developing interest in the Energy Sector. Thank you again!"

-Katharine Mah, Academy at King Edward

"Participating in the 2021 Energy Education Tool Kit Teacher Professional Development Program was an incredibly enriching experience. I loved the panel discussion and gained a greater insight into the different sources of energy and possible technologies that may shape the future of Canada's energy sector."

-Marueen Flynn, C. M. Finch Elementary School


How do you plan to use the Energy Education Tool Kit in your classroom?

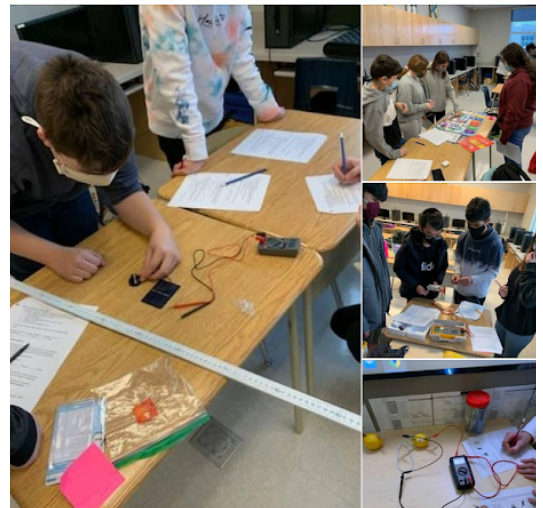
"I am eager to use it for teaching the electricity unit as well when we learn about the natural resources in the regions of Canada."

-Denise Torrance, Velma E. Baker School

"We are breaking it down into the different sections to utilize across the grades from 4 to 9 in science, social studies and our STEAM Lab. We are so grateful to Inside Education for providing this valuable tool."

-Laura Banu, Joseph M. Demko School

 Ecole St. Joseph School Whitecourt
12h ·  ·  · 
Students used the [Inside Education Energy Toolkit](#) to explore the generation and conversion of kinetic and potential energy.



 Hillview School
@Hillview_EPSB ·  ·  · 

Thanks [@insideeducation](#) and all of the sponsors for the Energy Education Tool Kit! Our students are going to love learning about energy. The teacher PD was fantastic.
[#insidePD](#) [#energyeducation](#) [#handsonlearning](#) [#epsb](#) [#millwoods](#) [#hillview](#) [#Yeg](#)



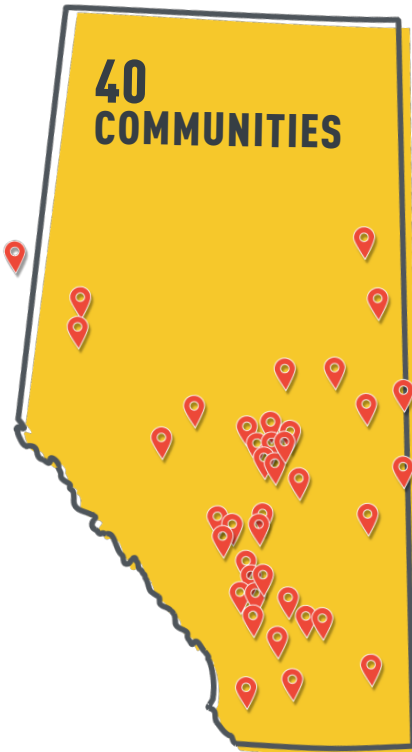
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PROGRAM REACH

79 schools from 40 communities received an Energy Education Tool Kit, some of which had multiple teachers attend the PD Program.

OVER 4,021 STUDENTS IMPACTED

*calculated based on teacher responses in post survey



The following communities were represented:

- | | | | |
|-------------|-------------------|---------------|----------------|
| Airdrie | Edmonton | Lac La Biche | Rocky Mountain |
| Athabasca | Edson | Lacombe | House |
| Bassano | Foothills | Leduc County | Rosemary |
| Calgary | Fort McMurray | Lethbridge | Siksika Nation |
| Camrose | Fort Saskatchewan | Lloydminster | St. Albert |
| Caroline | Fort St. John, BC | Medicine Hat | Standard |
| Chestermere | Glendon | Morinville | Stony Plain |
| Cold Lake | Grande Prairie | Onoway | Vulcan |
| Condor | Hughenden | Pincher Creek | Whitecourt |
| Devon | Janvier | Red Deer | Woking |
| Didsbury | | | |

IMPACTS

From this data, it was evident that the average level of knowledge of teachers in all topic areas was higher after the program than before the program. Teachers reported knowledge gained across all topics: Natural Resources utilized for Energy generation, Electricity Generation, Renewable & Alternative Energy, Fossil Fuels, Energy Efficiency & Conservation, Energy Stewardship, Careers related to natural resources and energy, and Energy and Climate.

Average participant confidence in teaching energy topics in the classroom increased **20%** following the program.

2.8/4 before the program to 3.6/4 after

Not at all confident



Very confident

Inside Education, you are an amazing resource full of amazing educators and I'm so happy that I am able to learn from you. This kit will be extremely valuable to have in my classroom and the learning today was so very helpful. Thank you!

LINDSEY BINGLEY
RIVER VALLEY SCHOOL



ENERGY EDUCATION TOOL KIT FINAL REPORT

As part of the Energy Education Tool Kit program, all participating teachers attended a PD session that connected them with energy industry professionals and taught them how to use the Tool Kit items in their classroom. Then, students experienced hands-on learning through the multitude of items in the Tool Kit during a time when most enriched learning has moved online. Through reading the feedback received in the post-program survey, it is evident that these kinds of hands-on learning experiences are incredibly valuable to teachers and students alike. Inside Education remains committed to providing these experiences, even in a year when a global pandemic has thrown many obstacles toward us all.

The ultimate goal of the Energy Education Tool Kit Program was to advance energy education at 79 schools across Alberta. The kits were designed to be used by multiple classes at multiple grade levels for years to come. The 4,021 students that are benefiting from the Energy Tool Kits in the 2020/2021 school year only represent the beginning of this program’s impact. We expect the kits to be used over multiple years, impacting future students across Alberta. We are investigating, and will be connecting with our program partners to consider another Energy Tool Kit ‘run’, even as COVID-19 restrictions hopefully ease in the coming months.

We extend our sincere appreciation to all our program partners for their support of our rapid, detailed pivot away from our normal program delivery model, and of this extremely successful program.

THANK YOU TO OUR PARTNERS



WWW.INSIDEEDUCATION.CA

11428 - 100 Avenue | Edmonton, AB T5K 0J4 | info@insideeducation.ca
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