

**Lacombe, Canada**

# **École Secondaire Lacombe Composite High School**

**Growing student leaders to save  
the planet**



**WORLD'S  
BEST SCHOOL**  
Environmental  
Action

**accenture**

**AMERICAN  
EXPRESS**



**WORLD'S  
BEST SCHOOL  
PRIZES**

# Table of Contents

---

<b>02</b>	<b>—</b>	<b>Introduction</b>
<b>03</b>	<b>—</b>	<b>School Profile</b>
<b>04</b>	<b>—</b>	<b>Context and Challenge</b>
<b>09</b>	<b>—</b>	<b>Expertise and Approach</b>
<b>15</b>	<b>—</b>	<b>Outcomes and Results</b>
<b>17</b>	<b>—</b>	<b>Key Steps</b>
<b>23</b>	<b>—</b>	<b>Advice and Guidance</b>





# Introduction

École Secondaire Lacombe Composite High School (LCHS) provides public education deeply focused on project-based learning to 850 students in Alberta, Canada. The projects they create are focused on social and environmental protection and promotion. It all started back in 2006 when a group of students created a project where over a couple of years, they built a 6.0 kW solar system onto the school's rooftop replacing up to 5% of the school's fossil fuel-produced electricity and giving way to their EcoVision Club. Four years later, the roof and solar system caught on fire, devastating the club members. This is what sparked a deeper, systemic change in the school. Today, SLCHS has successfully carried out an impressive number of initiatives that have significantly impacted the school and community. This includes a near-net zero tropical greenhouse, 2-acre garden with over 250 fruit trees, pollinator houses for bees, the production of numerous research papers and a community garden with indigenous plants of high nutritional, medicinal and cultural value.





# School Profile

---



**Country:**

Canada



**Region:**

Lacombe, Alberta



**School type:**

Public School



**Location area:**

Urban



**Student population:**

850



**Prize Category:**

Environmental Action

**“We are willing to go to the ends of the Earth to find the resources our students need.”**

**-Valerie Yaremchuk,  
Principal of LCHS**





# CONTEXT AND CHALLENGE

École Secondaire Lacombe Composite High School (LCHS) is a Grade 10-12 school of approximately 850 students based in Central Alberta, Canada. The high school offers students traditional academic subjects, such as Maths, Science, English, Social Studies and Physical Education. Moreover, they also offer learners courses in trade areas such as Mechanics, Fabrication (Welding), Construction, Cosmetology, Commercial and Domestic Foods, Design Studies, Media Studies, Fashion Studies, Financial Management and Vehicle Ownership. Its Off-Campus Programme also offers students a space to further their studies by applying to participate in a Registered Apprenticeship Programme, a Green Certificate Programme, and Army Reserve, and students can explore different careers through a Work Experience Site Placement Programme.

Student leaders who are invested in environmental challenges and projects also have the chance of joining the environmental club the school calls EcoVision, a student-led initiative that has had a profound impact on the school.

Back in 2006, Environmental Science Teacher and mentor, Steven Schultz, spoke on how words without actions are meaningless. Taking this to heart, one of the students came back to Mr Schultz a year later, in 2007, and expressed she had been brainstorming since he had said this to his class. She proposed a project that would go on to take the school off the electrical grid. Schultz challenged the student to come up with a vision statement, and a plan and a group of students to help with the project. A week later, with a team of 12 students, a clear vision statement and a plan in place, the EcoVision environmental club was born.





Today their vision statement still stands: "EcoVision's purpose is to grow student leaders through student-led projects which improve our environment, enhance our education and collaborate with the community". The team of students, with the guidance and help of teachers, fundraised door-to-door and eventually installed a 6.0 kW solar system which to date has produced 84.0 kWh, the equivalent of saving 1520 trees or running a 100 W light bulb for 96 years.

Then, in 2010, a fire on the roof of the school destroyed 20 solar arrays, devastating the team that had worked so hard to make it a success. Students decided to reignite the hope the first project had inspired and foment a united school spirit. They started out small, discovering that spider plants can clean the air and then brought one for each of the teachers at the school. After coining the phrase "out of our ashes we will rise", they began brainstorming new projects to tackle ecological challenges.

From this point, the school began to produce an outstanding level of research and project-based learning, with the EcoVision club becoming a centrepiece for the school.





May 15

\*Dr. Dalton & Kay Deedrick  
Performing Arts Scholarship  
LCCHS, \$1500

\*Mandis Award for Students in  
grades 10 & 11, up to \$800.  
Presented at



Enmax Centrium

Red Deer

Free to the Public

\*Wolf Creek Public School  
Scholarships (WCPS), \$300

\*Eagle Institute Essay Contest,  
\$500, \$1000 & \$1500, National

...store shelves this summer. Southern California-based Huy Fong Inc., told customers in an email earlier this

**“When our first solar power project burnt down, the 12 students who put it together gathered around me, devastated. That moment changed my life, I realised the kids really care. They really care about the school. They care about the environment. I didn't know what to say to them, I told them we were going to find a solution.”**

**-Steven Schultz, Mentor and Science Teacher at LCHS**





# EXPERTISE AND APPROACH

The spider plants that teachers were handed were a symbol of hope and gave the students a new topic to focus on. So, they began dreaming about building a sustainable greenhouse which students researched, designed, and constructed in 2012. Initially, Schultz thought to himself “how are we going to build a tropical greenhouse in the middle of cold Alberta?”, yet today the greenhouse is fully functional and almost carbon neutral. This project led EcoVision students to build agricultural environmental projects. Today, this includes a 2-acre food forest with over 200 fruit trees, 50 raised beds, 6 pollinator gardens, bird houses, picnic tables and bees. From this point, the club members worked on projects in composting, aquaponics, and goat production projects. Recently, Schultz mentioned how students have begun focusing on indigenous knowledge and its preservation. The club is currently in the process of finishing up its Educational Pollinator Indigenous Carbon Capture (EPICC) Garden project which is reintroducing 25 native plants into the area with indigenous value.

The club has carefully thought out its social infrastructure. Hierarchy exists to maintain structure and clarity of vision. However, the club much like the school emphasises horizontal leadership where all students have an equal voice in the process of constructing projects. Critical thought was also put into the lifeline of building the projects, each of these will now last one to three years so that each student is able to see the evolution of a project from its design phase to its active phase. The school Principal, Valerie Yaremchuk, mentions how all subjects in the school have in some way or another partaken in the projects, where this included dedicated classroom time to working on the greenhouse, pollinator houses, gardens, feeding the goats, among many other possible activities.





Following the completion of their projects, the staff emphasise the need to mark the achievements of the students and the school at large. They have hosted events where different stakeholders from the community, including important members of surrounding enterprises, government entities, parents and the wider community have been invited to come and see the projects in person. Students are celebrated for their achievements, pushing once again the notion of making students the voice and gatekeeper of the projects.

LCCHS sought to develop frameworks for critical thought and research, so it based itself on many inspiring authors and scientists, as well as renowned texts to structure their projects appropriately. These include Rob Avis from Verge Permaculture, Skye Fire Solar, Living Lands Landscaping, Rethink Red Deer, Inside Education, Battle River Water Alliance, The Central Rock Mountain Permaculture Institute, Alberta Centre for Environmental Education, Alberta Youth Leaders on Environmental Education, The Emerald Foundation, Wolf Creek Public Schools, Agriculture for Life, Centre for Global Education, ECHO Lacombe, Olds College, Red Deer Polytechnic, University of Alberta, Burman University, EcoSchools Canada, Lacombe Businesses and importantly, their indigenous elders and knowledge keepers like Elder Bert Bull. Schultz expresses that in the later stages of their projects particularly, they began a deep integration of indigenous knowledge from the surrounding communities.



**“We have decided to encourage oil companies to do the right thing. What do I mean by that? Invest in green infrastructure, in schools and programmes like ours. Look at their own practices and see in what way they can change their carbon footprint. Our gardens are sponsored by a company that has deeply changed its vision.”**

**– Steven Schultz, Mentor and Science Teacher at  
LCHS**





# OUTCOMES AND RESULTS

## Early years

From 2006–2010 students carried out a project where they installed a 6.0 kW solar system and incorporated renewable energy into the science curriculum. Taylor, a student at the school, mentions how the projects generally run a three-year cycle, ensuring all students are able to partake in different phases of the projects as they progress during their years at the school. And so, in 2010–2012 students went on to build two 850ft tropical greenhouses with four renewable energy systems near net zero geodesics, growing tropical plants and vegetables all year round. Meanwhile, in 2011 students started verma and thermal composting systems composting 25 kg of school waste/per month. Then in 2012, they went on to integrate a two-acre garden with over 200 fruit trees, 50 raised vegetable beds, and potato/garlic/squash patches.

2014 saw students build a commercial aquaponics system in the greenhouse where they raise tilapia fish and grew vegetables for LCHS' food programme and student micro-businesses. In that same year, they started organic indoor gardening with Earthboxes, an Urban Cultivator, an aquaponics system, and a tower garden. They also built an outdoor classroom with 10 picnic tables, bats and birdhouses.

## Later years

As the years progressed, Schultz mentions how students expanded their horizons. In 2018 the greenhouse technician program began where students become certified to work in a greenhouse. Two years later, in 2020, a new project called the Roofs 4 Kids project turned a sea container



into a goat barn with a rooftop garden, a 3.8kW solar system, a goat technician, and a horticulture program. Students in the club went on to learn that a certain species of bumblebee in the area was at risk of extinction. So, they initiated a pollinator programme with solitary bee hotels and six pollinator gardens, started a Beekeeping Technician Green Certificate (GC) program with eight honey bee hives and an urban beekeeping programme in 2016. Expanding horizons also included considering the value and need to protect and harness culture and community. Students from indigenous minorities voiced the valuable knowledge indigenous groups in Alberta could offer the school, pivoting the EcoVision club in a new direction. This year they began working on an indigenous community garden called the EPICC garden where students and community members grow indigenous plants of medicinal, cultural, and nutritional value.

Currently, the garden is reintroducing over twenty-five native plants that are pollinators, edible and have indigenous value; these plants also capture more carbon. The impact of all the projects has been presented at many conferences: ASCA, Inside Education's Navigate/Generate, Wellness, Healthy Active School Symposium, ACEE Environmental Education, and Ever Active Conferences. In the years 2016 and 2020 students also helped write papers with Alberta Youth Leaders for Environmental Education (AYLEE) that were presented to the Alberta Minister of Environment and Minister of Education. Moreover, in 2019 and 2020 LCHS students worked with the Centre for Global Education and Decarbonise to write "Agriyouth" & "Global Youth Report" which were presented to provincial and COP leaders respectfully.





# Impacts of the projects

LCHS takes pride in the evident impact their projects have had on their school and community. These impacts have included reduced greenhouse gas emissions, reduced pollution, increased awareness, improved food quality, improved health of students and the community, and water conservation. The school has also enhanced educational opportunities and integrated renewable energy into its science and social studies curriculum; started new courses for Beekeeping, Greenhouse Technician & Goat/Sheep production; spoken about our environmental projects at numerous conferences, schools and community workshops, and trained students to run their own micro-businesses and workshops.



# Key Steps



## LETTING STUDENTS DREAM

EcoVision and the general environmental integration into the schools all started with a few words which inspired passion in one student. The school understood from the beginning of its journey into environmentalism, that students must be at the forefront of any project they propose. The initial solar panel project was constructed after copious research conducted by the student and a team of interested classmates. The school expresses how this was only initially possible because of its desire to let students dream, asking questions such as what is the environmental problem that they are passionate about solving? What are the solutions to this problem? What is a sustainable project that we could build that would address that problem?







## RESEARCH

One thing Schultz reiterates is the importance of conducting solid and sound research on a given environmental problem. The research was vital when it came to creating projects which would be self-sustainable and that adequately met the needs of the local environment. Students and teachers asked themselves: what are the issues around these environmental problems? What have other individuals, organisations or groups done to address this problem? Which project idea would address this problem? On this front, they began producing copious research, publishing various research papers in the time since the project began. The first EcoVision Club project – their greenhouse – needed to host plants that would normally not withstand the cold temperatures of Alberta. Only through years of preparation were students able to set up the greenhouse in the most environmentally friendly way possible





## COMMUNITY AND COMMUNICATION

Next LCHS asked themselves, who in the community can help us with this problem and project? What community expertise is available locally, regionally, provincially, nationally, and internationally? What is the estimated cost of the project? Are there any community organisations, groups and individuals who would financially be able to help us with the project? Are these organisations, groups, and individuals willing and able to support them? The project and ideas the students have are truly fascinating, but without exposure, they can't continue to expand them. As such, the next steps involved putting the project ideas into presentations and having students, teachers and community volunteers start sharing the idea. To define the target of their communications and meetings they asked themselves some of these relevant questions: Who are the stakeholders that need to be included in the presentation and invited to a presentation? What are the stakeholders' concerns and desires? What social media platforms should the project be promoted on? Who can share best practices, project expertise and pitfalls to avoid? Who can create a project overview on an infographic or model? Which community groups do we need to get permission from, permits or licenses (school administration, school board, city, county, province) > How will the project be sustainable?

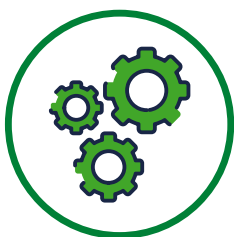






## FUNDRAISING AND SEEKING SPONSORS

The initial projects entailed door-to-door fundraising, selling arts and crafts, as well as food items at fairs and to community members. Later, Schultz expressed that to start working on larger projects, larger collaborations were needed. They began asking the following questions: Which organisations would consider financially supporting this project? What fundraising activities can the students do? What grants are available that fit the criteria of this project? What is the sustainability plan? In their time developing their projects, they have increasingly worked with community members and a range of stakeholders in both the public and private sectors. This collaboration was fundamental for the school to progress.



## IMPLEMENTATION

Once research and funding were in place, students could focus on bringing their projects to life. This meant planning out step-by-step how to move forward, and establishing different roles and responsibilities. They would then ask themselves: Who in the community is helping us build the project? What inspections or permits need to be acquired?





## **CELEBRATION**

Having a celebration event for each project was key for LCHS. This meant asking themselves who from the community and school needs to be recognised. Who is going to organise the event? How are the partners and sponsors going to be recognised? What type of event are you going to host? This was answered through an array of platforms such as school assemblies, project unveilings, workshops, prizes, events with food, music, guest speakers, amidst more. Since initiating their projects, principal Yaremchuk explains that the staff have taken the time to celebrate the achievements of the students and the success of the projects.



## **INTEGRATION INTO THE CURRICULUM**

Following the success and celebration of these projects came questions on how this would play out within the normal school's curriculum. What resulted were the following queries: how can we find places to implement the project into the curriculum? Does a curriculum need to be created? Who else has implemented a similar curriculum? Does the curriculum enhance or improve what students have? Does the curriculum increase environmental literacy and awareness?





Which teachers are going to implement the curriculum as a pilot project and if successful as a regular part of the student's curriculum choices?



## **BUILD A VOLUNTEER BASE**

Find community volunteers to maintain and sustain the project during holidays. The school asked the question: who in the community is passionate about the project? How can we make it a success for the volunteers? What sort of benefits are there for the volunteers? What sort of training needs to take place?



## **EVALUATE AND REASSESS**





The successes and shortcomings of the project are assessed at the end of the year and adjusted. Does this follow with questions such as what has gone well? What have we struggled with? How can we improve on the project? What is the feedback from all our stakeholders, teachers, students, parents, volunteers, partners, supporters, and community members?



# Advice and Guidance

Developing a relationship with the community is something the school considers to be critical. Schultz mentions this must work on multiple scales, so that students work with important organisations such as enterprises responsible for oil production in the area or government entities. Beyond this, principal Yaremchuk talks about how the type of leadership the staff carry out is equally as important. Promoting inclusion at the school means working on more horizontal leadership. The staff recognise how they are responsible for teaching students how to lead in a fair way, where all voices are heard. This means accepting that often students can persuade stakeholders to partake in projects with more ease than adults. Students can do more than we give them credit for. Giving students a voice is what started environmental action in the school, as well as the collaboration with the Green Schools Programme in the first place. They go on to mention the importance of integrating research into every project you choose to embark on, ensuring the right processes are taken forward and that the effects are being tracked.

## More information

-  <https://elchs.wolfcreek.ab.ca/>
-  [Lacombe Composite High School](#)
-  [@LCHS\\_Rams](#)
-  [@lchs\\_rams](#)

**Download the EcoVision Case Study**  
**Learn more about their work by watching their event at 2022's T4 World Education Week: watch here**

