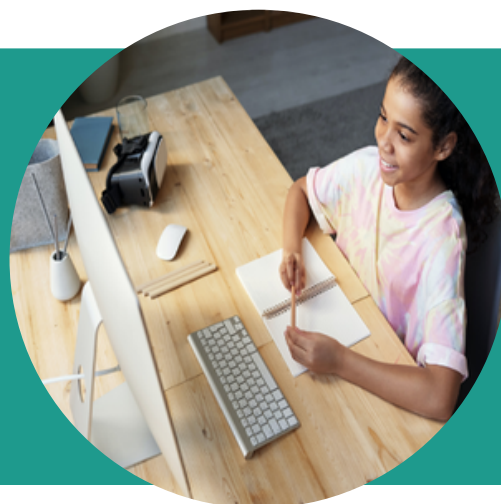


Understanding Energy Efficiency in Your School

Energy Revealed
Inquiry & Take Action Activity
Grade Level 7-12



Main Objective

Learners will research a chosen topic to understand the impact of the school's energy use.

Learning Outcomes

By the end of this activity, learners will:

- Utilize GreenLearning's Spiral Inquiry Model to answer the question: What is the impact of your school's energy use?
- Collaborate amongst peers to develop their own focus question(s) and inquiry plan

Length of Activity: 7-10 hours

Step 1: Answer research question

Step 2: Hypothesize and create inquiry question

Step 3: Conduct research to answer inquiry question

Step 4: Make a conclusion statement

Step 5: Present research findings and act

Materials Required

- Energy Metering Technology
- Understanding Energy Efficiency in Your School Inquiry Handout

Activity



Step 1: The Spark: What is the impact of your school's energy use on (fill in the blank)?

- Begin by getting familiar with GreenLearning's Spiral Inquiry Model found here:

 <https://programs.greenlearning.ca/course/spiral-inquiry-model>

- Every bit of energy use matters! Looking at the school's energy use, the learners can relate that use to the impact on the school itself, the learners, the community, the world, the future – whatever interests them!

Brainstorm Activity

1. Working with a partner, have learners brainstorm ideas as to why energy is important. Think of different possibilities: including transportation, heating/cooling, cooking, visibility.
2. Next, discuss why understanding energy use is important. Some ideas might be:
 - Understand our carbon footprint, pollution, concerns of greenhouse gases, cost reductions, etc.
3. Finally discuss the impacts the school's energy use has on:
 - The learners, the community, the province, the country, the future, etc.
4. Have the learners share their ideas and add ideas as they see what others have generated.
5. Post the ideas around the room. Add any ideas that come out of the discussion.

Step 2: Hypothesize and Plan

Focus:

Working as a class or in small groups, have learners decide on the focus of their inquiry. Use the Spark discussion and activities to help them decide. Revisit the brainstorming activity and class discussion and think about what you would like to investigate. Here is a list of possible suggestions, but have learners keep their own interest in mind and make sure to pursue something that interests them:

- Energy use of a water bottle filling station vs Energy needed to make a bottle of water
- What is our school's carbon footprint and how could we offset it? Or what would we have to do to offset our carbon footprint?

- How would you create an energy efficient school if you had no barriers to technology, money or anything else limiting your possibilities?
- Energy efficient communities – what could our community implement?
- How does our school’s energy use impact our community?
- How much energy is each learner responsible for during the school week?

If you have access to energy metering technology, try to use it to help you!

Learners may decide to do it on a broader topic related to energy use such as:

- Renewable vs Nonrenewable energy: Should our school implement other sources of energy?
- How to be more energy efficient
- Climate Change

Inquiry Question:

The learners are now ready to move on to create the group’s inquiry question or questions. Have each group meet and discuss what they have taken away from the class brainstorming and discussions. What interests the group? What would be the most relevant to your school? What topics would help them understand their findings?

The inquiry question needs to investigate both how the learners are going to use the energy metering technology using “If _____, then _____.” language; for example, “If we can identify energy waste in our school, then it will be easier to make a plan to be more energy efficient.”

Remember! While learners are conducting their inquiry, they may need to modify their question or hypothesis. Remember to make it something that is workable with the time you have.

Plan:

Next, have each group plan each step of their inquiry.

Check In:

Have the learners fill out part 1 of the learner worksheet.

Step 3: Explore and Research



Research:

Have each group gather and review information needed to answer their question or to test their hypotheses.

Record:

Record information and remember to keep track of their sources. Have the learners create the appropriate reports in the energy metering technology software. Have each group **evaluate** the information they collected:

- Does it answer their question or test their hypothesis?
- Does it raise more questions – if so, how can they be answered?

Reflect:

Have the learners reflect on and discuss their preliminary findings and observations to compare these to their previous knowledge. They may need to modify their focus question(s) and inquiry plan.

Check In:

Have each group fill out the worksheet (check in #2) as a group.

Step 4: Analyze and Check



Have each group **compare**, sort and **classify** their information. Describe characteristics and note patterns.

Conclude:

Have each group draw **conclusions** about their questions and hypotheses.

Check in:

Have the learners fill out the worksheet (Check in #3).

Step 5: Communicate



Now the groups are ready to turn their knowledge into action.

Communicate:

- Have each group communicate their inquiry findings to the class and other. They should think about what message they want to get across and tailor that **message** to the audience. Groups may produce a YouTube video, PowerPoint presentation, research blog, web pages on school site, podcast, meme, rap (or other style poem or song), skit or play, poster or other artwork, infographics, etc.
 - The audience does not have to be just the class. Have the learner think of other people who can benefit from learning what was discovered:
 - Junior learners - maybe in feeder schools
 - School council (possibly with a small request for funding to help your action project)
 - Parents
 - Display in a local mall
 - Part of a school assembly for Earth Day or other occasions
 - Experts who helped your research
 - Share on social media

Act:

Throughout the research, learners have probably come across many calls to action. They likely also have many ideas for what you and your class could do to inform your school or community about your school's energy use.

There are many suggestions classes have for energy education including:

- Meeting with local politicians/ school boards about issues
- Speaking at public meetings
- Awareness Fair

Plan:

Developing a plan is a good way to start. GreenLearning and ACEE would love to see it!