

Can You Observe How to Conserve?

Energy Revealed
Spiral Inquiry Activity
Grade Level 4-12



Main Objectives

Learners will research a chosen topic on how conserving energy will impact the school.

Learning Outcomes

By the end of this activity, learners will:

- Utilize GreenLearning’s Spiral Inquiry Model to answer the question: How can conserving energy impact your school?
- Collaborate amongst peers to develop their own focus question(s) and inquiry plan

Length of Activity

7 - 10 hours

Materials List

Pen and paper

Energy Metering Technology (Optional)



Step 1:

Spark (A Learner Investigation)

- Begin by getting familiar with GreenLearning’s Spiral Inquiry Model found here: <https://programs.greenlearning.ca/course/spiral-inquiry-model>
- Pose the question “How can conserving energy impact your school?”
 - We all know we should turn the lights off in a room that we aren’t using, but why? If you took the time to save as much energy as possible, what impact would that have?

- Here, learners will focus on researching one way their school can conserve energy.
- Working with a partner, have learners brainstorm ideas as to simple ways everyone can conserve energy (think of at school, at home, in and around the community.)
For example:
 - Turning off lights when not in use
 - Using energy in off-peak hours
 - Plugging in electricity only when needed
- Next, discuss why conserving energy is important:
 - Saves GHG’s from being emitted
 - Cost savings, etc.
- Using the above discussions, have the learners share their ideas and discuss different ways the school can save energy.
 - 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 you decide. Revisit the brainstorming activity and class discussion and encourage learners to think about what they would like to investigate.

- b. Here is a list of possible suggestions, but encourage learners to keep their own interest in mind and make sure to pursue something that interests them: lighting use, heating/cooling use, computer use.
- Senior learners may want to investigate: weather stripping, insulation, renewable energies, energy efficient appliances.
 - If available, have learners think about how they can use the energy metering technology to help with their investigation.

Inquiry Question

The learners are now ready to move on to create the group's inquiry question or questions.

- a. Have each group meet and discuss what they have taken away from the class brainstorming and discussions.
 - I. What interests the group?
 - II. What would be the most relevant to your school?
 - III. What topics would help the group understand their findings?
- b. The inquiry question needs to investigate both what energy conservation steps the school should take and what the impact will be.

It could be stated as a hypothesis using "If _____", then _____" language. For example, "If we turn the light off (in a determined space) then we can reduce the school's cost by x and save y GHGs"

- I. **Remember!** While you are conducting your inquiry, you may need to modify your question or hypothesis. Make it something that is testable and workable within the time you have.

Plan

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

Check In

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

Step 3: Explore and Research



Research

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

Record

- a. Record information and remember to remind them to keep track of their sources. If available, have learners create the appropriate reports in the energy metering technology software. Have each group **evaluate** the information they have collected:
 - I. Does it answer their question or test their hypothesis? Does it raise more questions – of so, how can they be answered?

Reflect

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

Check In

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



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) as a group and hand it in.

Step 5: Communicate



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

Communicate

- a. 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. Ideas include a YouTube video, PowerPoint presentation, research blog, web pages on the school site, podcast, meme, rap (or other style poem or song), skit or play, poster or other artwork, infographics, etc.
- b. 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:
 - I. Junior learners- maybe in feeder schools
 - II. School council (possible with a small request for funding to help your action project)
 - III. Parents
 - IV. Display in a local mall
 - V. Part of a school assembly for Earth Day or other occasions
 - VI. Experts who helped your research
 - VII. 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:

- I. Campaign to stop idling in school parking lots
- II. Meeting with local politicians/school boards about issues
- III. Speaking at public meetings
- IV. Awareness Fair
- V. Developing and passing around petitions
- VI. Take part in organized learner action competitions

Plan

Developing a plan is a good way to start. We would love to see it!