

Exploring Energy Storage in Your Community

Spiral Inquiry Activity
Grade Level: 7-12



About This Activity

Learners will use GreenLearning's Spiral Inquiry Model to explore a type of energy storage of their choosing and relate it to their community.

Learning Outcomes

By the end of this activity, learners will:

- Discover the implementation of energy storage in their communities
- Investigate various types of energy and present their findings to the class
- Collaborate amongst peers to develop their own focus question(s) and inquiry plan

Curriculum Connections

Alberta

Science 7: Interactions and Ecosystems
 Science 8: Mix and Flow of Matter
 Science 9: Matter and Chemical Change; Electrical Principles and Technologies
 Science 10: Energy and Matter in Chemical Change; Energy Flow in Technological Systems; Energy Flow in Global Systems; Stewardship
 Science 11: Science Technology and Society
 Science 12: Chemistry and the Environment; Energy and the Environment
 Social Studies 10-1: To what extent should we embrace globalization? 10-2: Living in a Globalizing World

Length of Activity

5 - 7 hours

Materials List

Internet-enabled device
 Energy Storage 101 Backgrounder
 Energy Storage Inquiry Worksheet
 Spiral Inquiry Additional Resources

Before you begin: This activity requires you to have completed the Energy Storage 101 Backgrounder and at least one activity with your learners. This will ensure learners have a solid understanding of energy storage before beginning the activity.

Step 1:

Spark (A Student Investigation)

- a. Begin by getting familiar with GreenLearning's Spiral Inquiry Model found here: <https://programs.greenlearning.ca/course/spiral-inquiry-model>
- b. Pose the question, "How can your community benefit from energy storage?" to the class at large.
 - I. Allow learners to break out into think-pair-share groups to begin generating some ideas.
 - II. Ask the groups to share their ideas, and record down their responses in a bullet list at the front of the class on the board.





- I. Each bullet can be discussed at large with the class by providing them with some teaser information on those points so it really gets them thinking further.

Step 2: Hypothesize and Plan



- a. As a class, discuss the different types of energy and decide the focus of your inquiry.
- b. Learners can be split up into groups so that they can brainstorm potential inquiry questions. Have the groups discuss what they have taken away from the class discussions.
- c. Hand out the “Exploring Energy Storage Inquiry Worksheet” to the learners in their groups and allow them to complete Part 1.

Step 3: Explore and Research



- a. Have learners work in small groups and decide what type of energy storage they would like to focus on.
- b. Below are some investigation suggestions:
 - I. Consider if that type of storage already exists in their community.
 - II. Research successful implementation of this type of energy storage in other places.
 - III. How much energy storage do you think your community could handle?
- b. Hand out the “Exploring Energy Storage Inquiry Worksheet” to the learners in their groups and allow them to complete Part 2. Be sure to remind learners to record their information and remember to keep track of their sources. Groups can evaluate their information they have collected and answer these questions:
 - i. Does your research answer your questions or test your hypothesis?
 - ii. Does it raise more questions, and how can you answer these?

Step 4: Analyze and Check

- a. Allow learners to compare, sort and classify their information.
- b. Get learners to draw conclusions about your questions and hypotheses.
 - I. Is their chosen type of energy storage suitable for their community? Why or why not?
 - II. If so, where would you consider that type of energy storage being implemented?
 - III. Make adjustments if needed. If you found out this type of energy storage is not possible, outline what modifications would need to be done to make it successful.
- c. Hand out the “Exploring Energy Storage Inquiry Worksheet” to the learners in their groups and allow them to complete Part 3.

Step 5: Communicate and Act



- a. Now the groups are ready to turn their knowledge into action. Allow the learners to communicate their findings to the class. Be sure to remind them about the message they want to get across and to tailor it to the classroom audience.
- b. Learners might produce a YouTube video, PowerPoint presentation, research blog, web pages on the school site, podcast, mind map, poster, or infographic, etc.