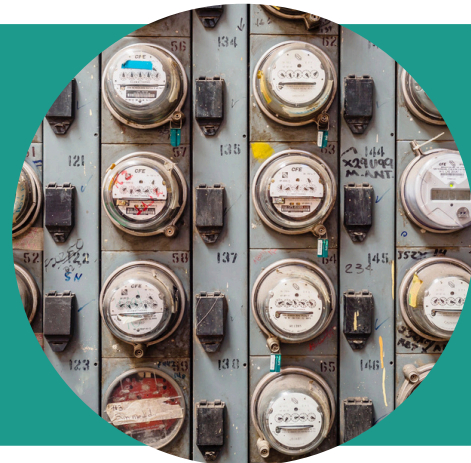


Energy Revealed

Changing Our Ways

Energy Revealed
Activity
Grade Level: 4-7



Main Objective

After charting their energy use for a twenty-four-hour period, learners will look for ways to reduce it. They implement energy saving strategies, and then track their energy use for another twenty-four-hour period. As they reflect on their experiences, learners consider the challenges to change and then identify an action plan that they can commit to and chart for a full two weeks.

Learning Outcomes

By the end of this activity, learners will:

- Track and think critically about their own personal energy use
- Clarify their concerns about energy use and waste in relation to themselves and their families
- Establish their own opinions about energy use and waste
- Reflect on their potential for changing both their behaviour and attitudes about energy use

Length of Activity: 2 hours

Step 1+2: Introduce energy tracking/usage and complete worksheet

Step 3: Class discussion

Materials Required

- Internet-enabled device
- Two copies of the Charting Energy Worksheet per learner
- Energy Needs: The Ways We Use Energy Backgrounder
- Taking Action: Personal Choices About Energy Use Backgrounder

Activity

Step 1: Direct vs. Indirect Uses of Energy

- Tell learners that you tracked your energy use from the time you woke up until you arrived in the classroom. Tell them how many ways you used energy in that time period. Ask them to consider the variety of energy uses they believe they used that morning. Invite volunteers to share examples of their energy use with the rest of the class. Record these on the board.
- Lead a discussion about indirect uses of energy. For example, if a learner had cereal for breakfast, ask them to consider the energy required to transport it to their breakfast table:
 - What energy is required to grow the cereal grains?
 - What energy is required to harvest the grains?
 - What energy is required to transport the grains to a factory to turn it into cereal?
 - What energy is required to operate the factory?
 - How does the cereal get to the grocery stores?
 - How do you get the cereal from the grocery store shelf to your table?

Step 2: Charting Energy

- Explain to learners that they are going to record their direct energy use for the next twenty-four hours.
- Give each learner a copy of the Charting Energy Worksheet for their data collection. Ask learners to mark “#1” at the top of the page.
- In the next class, after learners have completed their data collection, put them in pairs to compare and contrast their findings. Ask each learner to identify an item on their list that is not on their partner’s list.
- Create a master list on the board as each learner reports an item. After all learners have had a chance to contribute, invite them to share other items on their lists to complete the master list.
- Ask learners to select two items from their list and work with their partner to develop different ways they might conserve energy in each instance.
- Ask the pairs to share their ideas with the class. As a class, brainstorm a list of the specific actions that learners can take to reduce their energy use.
- Ask learners to prioritize their potential energy savings according to how difficult they expect the changes would be to make. Using pencil, rank energy items from easiest to change (1) to hardest to change (10) in the narrow empty column (column a) on the Charting Energy Worksheet.

- Ask them to think about the energy items additionally in terms of their necessity and functionality. When do we need energy as a matter of survival? When is our use optional, unnecessary? Pose questions to generate a discussion:
 - How many of you included cooking food as an energy item? Would this be a low or high priority item for you? Why?
 - How many of you included watching TV as an energy item? Would this be a low or high priority item?
 - How many of you included playing video games on the computer?
- Challenge learners to change their energy use for one day, by choosing to eliminate or reduce three or more of the least difficult low-priority energy items. Tell learners to record the time used for these energy items for their next data collection day, in the next empty column — column b. (Learners can write “Day” and “Time Used” into the spaces provided.)
- In the next class period, ask learners to write “Comparing before and after” at the top of the final column (column c) and then record the differences between their two data collection days. Data can be recorded in point form or by comparing actual numeric values (where savings are positive numbers and increased energy expenditures are negative).
- Tell learners to record a summary of their findings, to describe their energy saving efforts and to write about one experience. Pose questions to help learners summarize their key points:
 - How did the rest of the family respond to your energy saving efforts?
 - What was the easiest action to implement and why?
 - What was the biggest challenge?
 - What would help you overcome such challenges? How can we approach barriers to changing our ways?

Step 3: Conclusion

- Invite learners to reflect on their efforts and the results they achieved:
 - What was the most surprising information you uncovered when you tracked your own personal energy use?
 - How did your action plan work?
 - What was the easiest action to take? The hardest?
- Tell learners that they will continue to make the effort to save energy every day for the next two weeks. Ask them whether they want to revise their commitment based on what they learned from this energy saving experience:
 - How would you change your commitment? Why?
 - What kind of challenges would you face with your family members if you asked them to reduce their own personal energy use for a two-week period? How would you deal with those challenges?
 - Do you think most people in our community might find similar or different results if we asked them to do the same tracking exercise?
- Ask learners to write down how they will reduce their energy use for the next two weeks.
- After two weeks, collect learners' records of their energy savings. Display them somewhere in the classroom or elsewhere in the school to celebrate their successes.

Teaching Tips


Before teaching this lesson, track your energy use from the time you get up until the time you arrive at school. Identify both direct and indirect uses of energy. Examples of direct use include things like using a hair dryer, brewing coffee, and burning gasoline in your car. An example of indirect use could be the energy required to transport a banana to your breakfast table.

Extension Activities

- **Use charts or graphs to display data.** Challenge learners to represent their first two data collection days through a simple chart, table, or graph. You can relate this activity to math learning outcomes for preparing, recording, displaying, and interpreting results in a graph.
- **View The Story of Stuff as a class.** This 20-minute animated video narrated by Anne Leonard comments on our consumer society in a way that is accessible and compelling. Visit:

 <https://www.storyofstuff.org/movies/story-of-stuff/>.

- **Chart the whole family's energy use.** Ask learners to work with their family members to track the family's energy use over a twenty-four-hour period. Contrast the families' energy use with the national statistics. Visit Natural Resources Canada to see the basic data on Canadian household energy use. To reflect on this information, learners could write in their journals or discuss similarities and differences.

 <https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/showTable.cfctype=AN§or=res&juris=00&rn=12&page=0>