

Puzzling Over Energy Issues

Energy Revealed
Activity
Grade Level: 4-7



Main Objective

Learners learn about social issues and then choose one to research from the wide range of energy and environmental issues in the media today. Learners research the issues to generate between ten and fifteen keywords and clues for a crossword puzzle that they proceed to create online. While investigating a topical issue, they gain new vocabulary and explore unfamiliar concepts.

Learning Outcomes

By the end of this activity, learners will:

- Understand there are many, often complex, energy and environmental issues
- Research and work with an energy and environmental issue that they think is important
- Form their own opinions and consider potential solutions for an energy and environmental issue

Length of Activity: 4 hours

Step 1+2: Introduce energy issues and explore the current energy issues facing us today

Step 3: Class discussion

Materials Required

- Internet-enabled device
- Newspaper and magazine articles and/or short videos that illustrate various energy and environmental issues
- Energy and the Environment: The Impacts of Our Energy Use Backgrounder
- Taking Action: Personal Choices About Energy Use Backgrounder
- Renewable Energy Sources Backgrounder

Activity

Step 1: What Is an Issue?

- Define what an issue is, inviting ideas from the class. You may want to use examples directly related to learners' lives such as the conflict in the schoolyard, sibling rivalry, or safety in the halls.
- Explain that there are many energy and environmental issues that are important today. They can often be grouped into larger topics, and they can be local, regional, provincial, national and/or global.
- Ask learners to think of an energy issue that they are aware of. Then have them share their ideas with another learner.
- Ask for a few examples from the class.
- Discuss how each example is an issue, what larger topic it relates to, and whether it is local, regional, provincial, national, or global.

Step 2: Main Activity

- Use newspaper and magazine articles or radio and/or video clips (such as YouTube clips) to introduce a couple of examples of current energy and environmental issues. For each one, have learners identify what kind of issue it is: What larger topic does it relate to? Is it a local issue? A global issue? Somewhere in between?
- Pose questions to further explore each issue with the class. Learners will need to refer back to these questions, so you may want to write them on the board:
- What is the main issue or problem?
 - How do you know it's an issue or problem?
 - What events have led to the issue?
 - Who is involved?
 - How does it impact the environment?
 - How does it impact people?
 - Who decides what happens and how?
 - Can you think of ways people might solve or at least approach the problem?
 - What solutions have experts suggested?
 - What benefits could these solutions provide?
- Explain to learners (working individually or in pairs) that they will select an energy and environment issue to work with, one that they think is important. Then, using a crossword puzzle maker online (which can be found under "Teaching Tips"), they will create a crossword that sums up the key points. When selecting topics, it may help learners to look through national science magazines or newspapers.
- Verbally or in written paragraphs, have learners define their topics for you before they begin their detailed work.

- Tell learners to refer back to the questions on the board as they gather information.
- Give learners time to conduct their research and address the guiding questions. Explain to learners that their task is to identify ten to fifteen keywords and a matching clue for each. Provide an example of a crossword puzzle from a local paper. Also, review a couple of examples of clues:
 - A large ocean mammal whose habitat is threatened by oil spills: WHALE
 - This captures the sun's energy and converts it into electricity: SOLARPANEL
 - You may want Grades 4 and 5 to work with fewer words than Grades 6 and 7.
- You can use the backgrounders for learner research, or direct learners to any number of other sources such as websites, magazines, textbooks and so on.
- Direct learners to Puzzlemaker:

 <http://puzzlemaker.school.discovery.com>.

- Working alone or in pairs, learners will need one class period online to create their puzzles.
- Tell learners to select the Criss-Cross Puzzle option from the list of puzzle types. Puzzlemaker then presents learners with four steps. They need to complete Step 1 by entering a title for their crossword.
- Under Step 2, learners enter the words for their crossword and the clues. They enter the word first, then a space followed by the clue. Before learners begin, take a few moments to illustrate this format on the board so that learners are clear about the difference between words and clues and clear about the way to enter them into Puzzlemaker.
- For Step 3, make sure the box is checked. Once they have entered all their words and clues, learners click Create My Puzzle! and it instantly appears on the screen.
- Tell learners to click the Print icon on the screen so that they will have a copy of the puzzle. As mentioned in the "Teaching Tips", learners cannot save their puzzles unless you have registered with My Discovery. You may want learners to print two or three copies of their puzzles depending on what you plan to do with them.

Step 3: Conclusion

- Invite learners to exchange their crosswords with someone else. As learners do the crosswords, let them help each other find the answers and explain their issues to one another in the process.
- Put learners in small groups to discuss the issues they researched and their experience with Puzzlemaker. Pose questions to get the groups to explore some of their ideas for solutions:
 - What did you learn about energy issues?
 - What makes issues complex?
 - What is our role in finding solutions?
- Ask learners to add topic-related drawings and images to their crossword puzzles before submitting them to you.

Teaching Tips

To prepare for this lesson, visit Puzzlemaker at the learner-friendly Discovery School website:

 <http://puzzlemaker.school.discovery.com>.

Follow the steps to create a Criss-Cross Puzzle so that you can anticipate learner questions. Note that learners cannot save their puzzles unless you have registered with My Discovery. To explore this option and learn more about My Discovery, go to:

 <https://www.discoveryeducationglobal.com/>

This lesson does not require you to be registered. If you are not, however, you will need to be sure to remind learners to print their puzzles as soon as they create them. Learners will not be able to return to their puzzles to make changes to them.

Before the lesson, also decide how you want learners to conduct their research. Will they use the backgrounders? Which ones? Consider these in particular:

- Renewable Energy Sources
- Energy and the Environment: The Impacts of Our Energy Use
- Taking Action: Personal Choices About Energy Use

Will learners use them online or will you print copies? Do you want to suggest other sources instead or as well?

Extension Activities

1. **Create a crossword puzzle book.** Assemble all the learners' crossword puzzles into a book. Let the class add a cover page, a message to readers, and a list of credits before donating the book to the school library.
2. **Write a newspaper article.** Invite learners to write a newspaper article about their energy issue. Representing the issue will encourage learners to think more substantively about it. Tell learners that their newspaper article must include all (or many) of the words in their crossword puzzles.
3. **Introduce political cartoons.** Help learners identify the role of political cartoons. Let them create a comic strip or cartoon to illustrate their issue and present a solution through parody, irony or sarcasm.