CONCIOUS CONSUMERS OF FUTURE

LESSON PLAN ON RENEWABLE ENERGY INVENTIONS

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| Lesson | **English** | Subject: How renewable energy inventions protect the environment? |
| **Level** | **Upper \_intermediate** | **Time:40\*2** |

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| AIMS | | \*Students will learn how electricity is generated using hydroelectric power and renewable energy sources.  \*Students will sketch, model or build a prototype of an invention that uses renewable energy in the community or region where they live.  \*Students will be able to make explanation of how the plan is more advantageous than other renewable and non-renewable energy sources  \*Students will be able to present their sketch, model or prototype to the class and address key elements of their energy proposal.  \*Students will be able to analyse of any negative impacts on the environment  \*To improve understanding of pronunciation information given in a dictionary  \*To take notes and retell information to others  \*To use expressions of certainty when discussing events | | | |
| Grammer topics: | | | | | To be, simple past, simple present, discussing ideas using agreeing or disagreeing expressions |
| **Teaching methods:** | | | | | Acting, individual work, silent reading, group work, |
| **Teaching learning activities**  **Step 1** | | | | | |
| **Motıvation** | | | \*Teacher asks students  \*How do inventions that use renewable energy help protect the environment? | | |
| **Warm up** | | | \*Teacher ask students   * What are the names of the inventors who created these different energy sources? If students are not sure, how could they find out? * What problem were the inventors trying to solve? * What steps are involved in the invention process (turning an idea into a finished product)? * What innovations or improvements were made to these inventions? | | |
| **step 2** | | |  | | |
| * **process** | \* Where does your community’s water supply come from?  \*What forms of energy are used in your home?  \*Have you ever heard of hydroelectricity? What do you think this term involves?  \*Sts read individually (silently) and loudly (one by one) for the meaning of the text this time. And answer the comprehension questions.  **Oregon to transform lakes into batteries to charge electricity grid**  [Science](https://www.pbs.org/newshour/science) Oct 6, 2016 2:00 PM EDT  Swan Lake Valley is a patchwork of farm fields and grazing land about 20 minutes from Klamath Falls. The slopes of the surrounding juniper-scattered hills rise sharply from the valley floor, brown against the green of hay and alfalfa below.  About 5,500 acres of the valley is part of [**Edgewood Ranch**](http://www.edgewoodranchinc.com/about.html). Lauren Jespersen’s family has been on this land since the 1970s, farming about half of it and making pellet livestock feed. But like many farm families, the Jespersens are trying to ensure their futures by doing more with their land.  “It’s hard to make a living in agriculture anymore unless you are an extremely large operation,” Jespersen says.  Like a growing number of farmers on the sunny, windy eastern side of the Cascades, they’re getting into the business of renewable energy. For Jespersen, it’s an emerging niche of the renewables market: large-scale energy storage called “pumped storage hydroelectricity.”  At its very core, pumped hydro is a giant water battery.  This battery needs two essential things to work: a steep elevation change and access to water. Edgewood Ranch has both.  \*Next, students should answer these two questions:   * Why is it important to store electricity for later use? * Would it be possible to build a pumped-storage plan in your community or region? (or how could you find out if your community has such a system?) Explain your answer. | | | | |
|  | **Individual learning** | | | * Start by asking your students to once again think about the environment and landscape around them. To generate electricity, what inventions using renewable energy might work in their community or region? (i.e. wind turbine, pumped storage, etc.; see websites below for suggestions) What forms of renewable energy would not work well? | |
| **evaluation** | **Group work** | | | * \*Let your students know that they have been asked to write a 1-2 page proposal for their community that uses alternative energy. The plan should include a sketch, model or prototype of their renewable energy source, which they will present to the town or city council (classmates and teacher!). * Along with the sketch, model or prototype of the energy source, include a 1-2 page proposal which addresses the following: * Key features of the alternative energy source * Location of the energy source * Problem that the invention is trying to solve * Cost of the plan * Number of people, homes and businesses that will be serviced * Personnel needed for carrying out the plan * Analysis of any negative impacts on the environment * Explanation of how the plan is more advantageous than other renewable and non-renewable energy sources * Groups should present their sketch, model or prototype to the class and address key elements of their energy proposal. The class should ask questions and provide feedback as if they are key stakeholders, including town or city council members, state officials, scientists, business leaders, environmental advocates, etc. | |