Renewable energies – energy of the future

1 Study topic and detailed objectives

The teaching period covers the topic of “Can we meet our future energy requirement with green electricity (that is, by using renewable energy sources)?” The aim is for students to become familiar with renewable energy sources as a substitute for fossil energy sources, and to identify the viability of these energy sources for the future and for environmental compatibility. The students will work on these aspects through research.
An inquiry task and group work are the teaching methods that can be used.

Note: With this topic, the Internet is an extremely diffuse and contradictory source of information. The students should therefore also use the information sheets and graphics included in this media package!

2 Teaching plan

Note: All media mentioned below are available in the “Renewable energies – the future is sunny” media package or as individual media on the media portal of the Siemens Stiftung.

2.1 Introduction: Approach to the topic and class discussion

Statement and question: “More and more people want to meet their energy requirement using green electricity. Their reason: Green electricity is environmentally friendly and future-oriented. Are they right in thinking this?”
After doing subsequent research, the students should be able to decide whether they agree with this statement or not. Suitable research questions will now be developed jointly. The following questions, for example, might be suitable as a basis for research:

- What is green electricity and what are renewable energy sources?
- Who offers green electricity and on what terms? Is green electricity available everywhere?
- Will it be practical and financially viable in the future to meet our energy requirements completely with renewable energy sources?
- What are the positive and negative aspects of using renewable energy sources in the future?

The teacher and students should come up with at least four questions representing a more or less similar amount of research effort.

2.2 Working through the topic: Researching the posed questions in groups

The questions are now given out to an appropriate number of student groups. Each group researches online and in the media files provided in the media package and on the media portal. The results are presented by the students in short presentations (digital or analog).

© Siemens Stiftung 2017. Content licensed under CC BY-SA 4.0 international

Suitable media:

- Website address of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety on the topic of “renewable energies”
- Photo collage: “Renewable energy sources”
- Graphic: “What are renewable energy sources?”
- Graphic: “Solar thermal power plants”
- Information module: “How a wind power plant works”
- Information module: “Hydroelectric plants”
- Information module: “Development of renewable energies worldwide”
- Information sheet: “What does the changeover to renewable energies cost?”

2.3 Presentation of results and vote

The results are presented in class and discussed. After this, the class returns to the initial statement and tries to support or reject it on the basis of the new knowledge. Students can vote and should give reasons for their decision.

2.4 Outlook

The session can also be incorporated into the “Energy grid of the future” project day.

© Siemens Stiftung 2017. Content licensed under CC BY-SA 4.0 international