

The Energy – a global problem

Students are introduced to the importance of energy in their lives and the need to consider how and why we consume the energy we do.

Lesson's associated activities engage students in general energy issues and an optional graphing activity that provides experience with MS Excel graphing and perspectives on how we use energy and how much energy we use

Through a series of activities, students understand how they use the energy and what the impact of energy consumption is.

After this lesson, students should be able to:

- Explain how the depletion of fossil fuels is a serious global issue.
- List three decisions and actions they can make/take to reduce their personal energy consumption.
- Use mathematics in other fields, using graphs, computation and models.
- Surf the internet to get information
- Use of the 2.0 Web

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Student aged: 12-13

Language level: A2 (based on the common European framework reference for languages)

Duration: 2 teaching periods

1st Teaching period (60 minutes)

1st Activity:

Time: 10 minutes

Type of activity: engage through individual work and classroom discussion

Class organization: classwork

Actions/Tasks: The teacher asks the students to take a poll “What do you know about energy?” then initiates classroom discussion about energy. As a class, discuss how you can feel, hear and see energy (for example: wind, solar and sound energy or what energy does).

2nd Activity:

Time: 25 minutes

Type of activity: engage and explore using a video projection

Class organization: classwork, individual work

Actions/Tasks: The teacher shows a [video \(Types of Energy | Energy Forms | Energy Sources and Uses - YouTube\)](#) and an online [Energy Glossary \(Password 2022\)](#) with brief definitions in order to explain the concept of energy and to introduce new vocabulary. Students can write in their notebooks.

3rd Activity:

Time: 15 minutes

Type of activity: classwork

Class organization: group work

Actions/Tasks: Language practice and assessment

Students are asked to learn and practice independent content-related vocabulary through flashcards and games [Energy Glossary \(Password 2022\)](#):

4th Activity:

Time: 10 minutes

Type of activity: art creation on a digital tool and practice vocabulary

Class organization: pair work

Actions/Tasks: The teacher asks for the students to use <https://wordart.com> to create a small piece of art using as many words related to energy.

2nd Teaching period (60 minutes)

1st Activity:

Time: 10 minutes

Type of activity: Brainstorming electrical energy production, Investigation consumption:

Class organization: individual work and pair work

Actions/Tasks: The class brainstorms about energy sources to be developed for electrical energy production; they must assess the social, economic, and environmental implications of each energy source. The teacher writes their ideas on the board.

Teacher leads classroom discussion about sources and technologies used in energy production and ask the students to read more information about renewable and nonrenewable sources of energy from internet

Students are asked for their opinions: Does energy production have social, economic and environmental implications? What are the key benefits of renewable energy for people and the planet?

Students search for clues of energy around them. They relate their energy clues to the products they encounter every day. The teacher ask for them to write down the item that uses energy, source of energy and to estimate the daily running time for this item.

2nd Activity:

Time: 20 minutes

Type of activity: Brainstorming, visualization and discussion on the padlet

Class organisation: whole class

Actions/Tasks: The teacher presents a digital wall - the [padlet Energy consumptions](#) and expands discussion on specific issues on the energy consumption topic.

The students are asked to watch some videos, study the images provided, and discuss these and to answer to the questions on this digital wall so that they can see and comment on their peers' answers. The teacher will also comment on students' answers.

The students have to do the calculation proposed in order to estimate the amount of required energy per person per day and to indicate modalities to decrease our daily energy consumption (Possible answers: Eat all of their food, use less appliances, carpool...dry clothing outdoors, take the stairs and not the elevator, etc.)

3rd Activity

Time: 20 minutes

Type of activity: Problem solving, Analyze Data and Communication

Class organization: pair work

Actions/Tasks: Teacher hands out a [Google document](#), Worksheet _Energy Consumption and assigns the exercises to calculate the cost of energy consumption based on the information they have and what they have learned in the previous activities. Each group will communicate results and present their graph.

4th Activity

Time: 10 minutes

Type of activity: art creation and practice vocabulary

Class organization: group work

Actions/Tasks:

The groups of student are asked to realize different types of materials (digital art or drawings, videos, slogans) with actions that students in school can make/take to reduce their personal energy consumption and to raise awareness about saving energy.

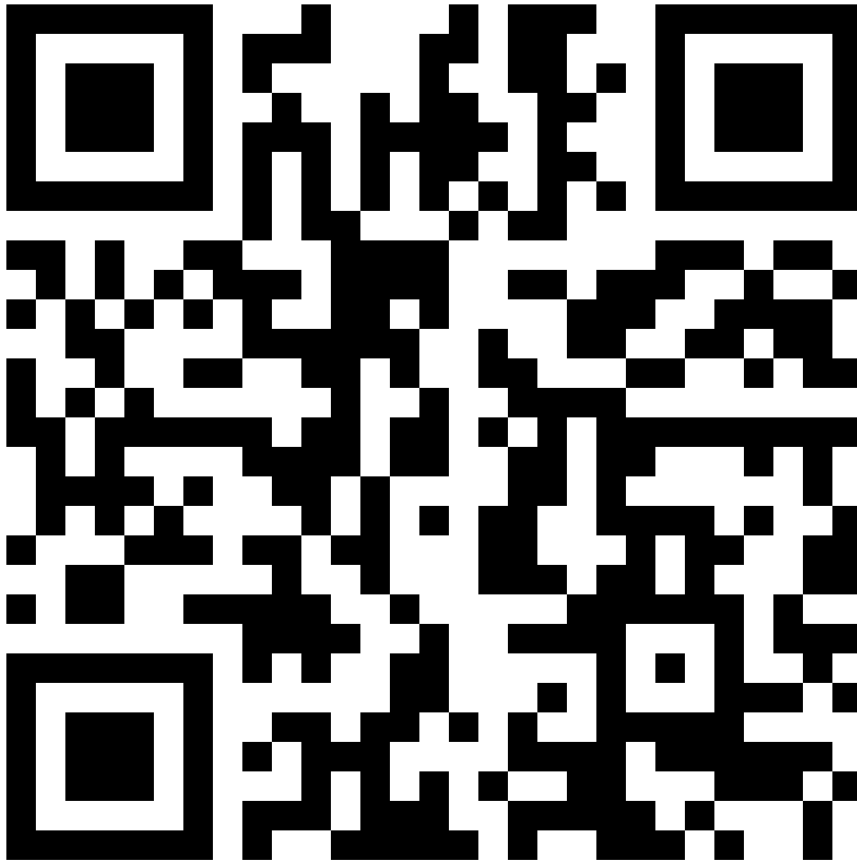
Follow-up activities:

- Making Renewable Energy Poster Presentations in your classroom;
- Plan a promotional campaign to reduce electrical energy consumption in your school

Resources:

Video projector, computers, tablets and smartphones

[Types of Energy | Energy Forms | Energy Sources and Uses - YouTube](#)



<https://padlet.com/irinavoicu/uwjz2bf4eubswl8e>

<https://quizlet.com/709943208/energy-terms-flash-cards/>