Energy aware at home

This learning scenario introduces adult learners to the impact of household electricity consumption and demonstrates how AI tools can support cost estimation, energy awareness, and waste reduction.

Learning objectives

After completing this scenario, learners will be able to

- identify the electricity consumption of the main household appliances
- use free artificial intelligence tools to calculate energy costs
- recognise high-energy-consuming devices
- develop a personalised, realistic and applicable energy saving plan
- use artificial intelligence as a tool to support informed decision-making in everyday life

Target group

Adult learners with basic digital skills who have low to medium confidence in using technology and no prior knowledge of energy-

Level
Easy ★

Length
2 x 60 min

Mode
Online and in-person

image: Canva

To study before the scenario

YouTube video "How to calculate the running cost of electrical appliances"
Energy usage calculator

Emerging Technology tools used	Teacher	learner
ChatGPT	☑	☑
Google Gemini	☑	☑
Google Sheets	☑	☑
Canva	☑	

Equipment needed

Computers/laptops/mobile phones for classroom learning, internet connection.

Description of the learning scenario

SESSION 1: Understanding energy consumption

Step 1 – Warm-up: "How much does it actually cost me?" (10 min)

The teacher introduces a familiar situation:
"Many people say, 'I don't know why the bill is so high.' Today we will see exactly where the cost comes from. And what impact would a 10% reduction in consumption have on energy use and the environment?"

The teacher opens ChatGPT and enters the prompt:
“Calculate the monthly electricity consumption and cost of a 2000 W appliance used for 30 minutes a day, at a price of 0.40 lei/kWh. Explain the result in a way that someone who is not good at maths can understand.”

Learning objectives

- Students understand that every device has a daily cost, even for short-term use
- Anxiety about numbers is reduced by outsourcing the calculation to AI
- The idea of “a little every day = a lot every month” is introduced intuitively
- Students see the direct link between consumption and emissions or resources consumed

The teacher asks: If you used this device every day, would you say it was worth the cost? (the question shifts the focus from mathematics to personal decision-making)

Step 2 – Short video: visual confirmation (5 min)

How to calculate the running costs of electrical appliances

The teacher states before playback: You don’t need to remember formulas. Just watch what influences the cost.

The video reinforces what learners have already seen in ChatGPT and provides visual confirmation.

Step 3 – Clarifying essential concepts (15 min)

The teacher uses Gemini only for what is necessary, not for a complete theoretical lesson.

Prompt
“Explain in very simple terms what power (W), consumption (kWh) and standby energy mean. Use everyday examples with a television, a refrigerator, and a microwave oven.”

The teacher selects a maximum of 3 key ideas and relates each concept to a specific situation (“plugged in,” “runs all day”).

The teacher asks the learners:

- “Which device runs all the time?”
- “Which one consumes a lot, but for a short time?”

Step 4 – Practical activity: “My house” (20 min)

Learners work individually, but with maximum personal relevance. Each learner writes down 5 real devices that they use frequently at home.

Then they type into ChatGPT:
“Here are 5 appliances I use at home: [list]. Which of them probably consumes the most electricity and which the least? Which of these appliances contributes more to the environmental impact? Briefly explain why, in simple language.”

Group discussion
The teacher asks simple questions:

- “Did any of the results surprise you?”
- “Is there an appliance you could use less often?”
- “Is consumption also an environmental issue, not just a cost issue?”

Step 5 – Homework: observation of technology (10 min)

Students are asked to observe the appliances in their own homes and take photos of:

- energy labels (A–G / A+, B, etc.);
- power labels (W).

This step moves learning from the classroom to real life and increases the feeling of control. It also prepares concrete data for session 2

The teacher emphasises that they don’t have to understand it, just bring the information to session 2.

SESSION 2: AI calculator + estimation

Step 1 - Review of homework and group demonstration (10 min)

The teacher selects 3–4 examples of appliances submitted by students (photos with power ratings and energy labels). They enter the data into ChatGPT with a prompt geared towards practical decision-making:
"Calculate the monthly cost of these appliances using 0.40 lei/kWh and present the result in a simple, easy-to-read table. Highlight the appliances with high consumption and explain why."

ChatGPT provides a clean, structured table and a simple comparison of the appliances that cost more and why. This helps learners to see the real impact of appliances on their bills.

Guided discussion: Which of these appliances could you use more efficiently? The teacher briefly discusses the results and highlights common high-consumption appliances.

Step 2 - Individual AI consumption calculation (15 min)

Learners enter their own list of appliances into their chosen AI tool (Gemini or ChatGPT).

They enter a prompt:
"Calculate the daily, monthly and annual cost for these appliances (0.40 lei/kWh). Present the results in a clear table and explain simply what this means for my monthly budget. Indicate the appliances with high consumption and quick savings recommendations. Also present what impact these savings would have on the environment."

AI produces a clear and personalised table with complete daily/monthly/annual cost, which helps to see the link between economy and sustainability.

Step 3 - Viewing results (10 min)

Students transfer the AI table to Google Sheets. Sheets automatically generates:

- bar charts (cost per device)
- pie charts (percentage of total consumption)
- colour-coded highlights

This gives quick identification of high-consumption devices.

Step 4 - AI-powered energy saving strategies (10 min)

Teacher or learners give a prompt to Google Gemini:
"Suggest 5 practical, low-cost strategies for reducing energy consumption at home, with examples for the kitchen, heating and electronics, suitable for beginners. Include environmental benefits as well as financial savings."

Gemini produces:

- easy-to-use recommendations
- concrete examples for everyday use in the household

The teacher presents these strategies as inspiration for the next step.

Step 5 – Personal energy saving plan generated by AI (10 minutes)

Students create their own personalised final plan using ChatGPT:
"Create a personalised home energy saving plan based on my appliance consumption data. Include the top 3 appliances I should focus on, recommended daily habits, and estimated monthly kWh savings. What are the actions that have an impact on the environment?"

ChatGPT generates a personalised plan for reducing consumption of electricity and estimated savings. Students paste the plan into Google Docs or Google Sheets. A column entitled 'Environmental impact (high/medium/low)' can be added to Google Sheets.

Step 6 - Peer review and quick assessment (5 min)

Students exchange their plans in pairs or small groups. They answer two questions:

- Is this plan realistic for your lifestyle?
- What change would you like to implement first?

The teacher assesses:

- Did the students use artificial intelligence correctly for calculations?
- Are the consumption estimates reasonable?
- Is the final plan clear and achievable?

The teacher's role is to ensure that the plans are clear and achievable. Learners receive immediate feedback from the group, which fosters collaborative and participatory learning.

Emerging Technologies for Holistic Literacy in Adult Education

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