



STEM for inclusive Schools

WP2 – Activities

Worksheet – STEM course plan

Technology / Physical / Math

Inovatif ve Girişimci Toplum Derneği

Project Title: STEM for inclusive Schools

Acronym: STEMInSCH

Reference number: 2023-1-DE02-KA220-000151162

Project partners:

- P1 University Paderborn (UPB), DE
- P2 Universitatea Dunarea de Jos din Galati (UDG), RO
- P3 Scoala Gimnaziala Nr. 7 Galati, RO
- P4 Siec Badawcza Lukasiewicz - Instytut Technologii Eksploatacji, PL
- P5 Inovatif ve Girişimci Toplum Derneği, TR**
- P6 Sucessos Criativos, Lda, PT

Worksheet for the Activity:

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A Sustainable Home

name of the activity

Task description:

This STEM activity aims to gain a deeper understanding of the benefits offered by renewable energy sources and to raise awareness about sustainability. It also includes developing knowledge and skills on ways to use renewable energy sources such as solar energy and responsible consumption. The activity is structured according to the engineering design process model. The activity includes designing a house/city using solar energy through digital simulation tools such as energy3d.

Time to finish the task: 380 minutes

Supplies:



Energy3d simulation program, laptop / PC computer,
Additional Materials: Poster paper (50x70 cm), colored pencils, ruler,
various materials for the house model.

<https://energy.concord.org/energy3d/>

Method:



The activity is structured according to the engineering design process learning model. The activity covers the design of a sustainable house using solar energy through the Energy3D program.



Instructions:

Theoretical information is provided focusing on renewable energy, renewable energy types, ways to benefit from solar energy and the production of electricity from solar energy. In the education phase, after the Energy3D program is introduced, the teaching process that progresses according to the engineering design process learning model is used. According to this model, participants discuss appropriate solutions to a problem or problem scenario (For example, environmentally friendly solutions against excessive electricity bills) related to electricity expenditures - responsible energy consumption - sustainability in groups and develop new solutions. They convert possible solutions into prototypes with the Energy3D program and test them. Thus, they try to design the most appropriate solution.

Your Group name:



Write the names of your group members in the box:





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Graphics and Tables:

Write down the electrical appliances you use in your home and their daily consumption. Also, calculate the total amount of electrical energy consumed per day in kilowatt hours.

Electrical Name	Device	Daily Usage Time (h)	Amount of Electricity Consumed (kWh)
Total Daily Electricity Consumed (kWh)			
Total Monthly Electricity Consumed (kWh)			
Total Amount of Electricity Consumed Annually (kWh)			

Write the problem scenario or issue clearly below.



Write down your final idea for your home in a few sentences:



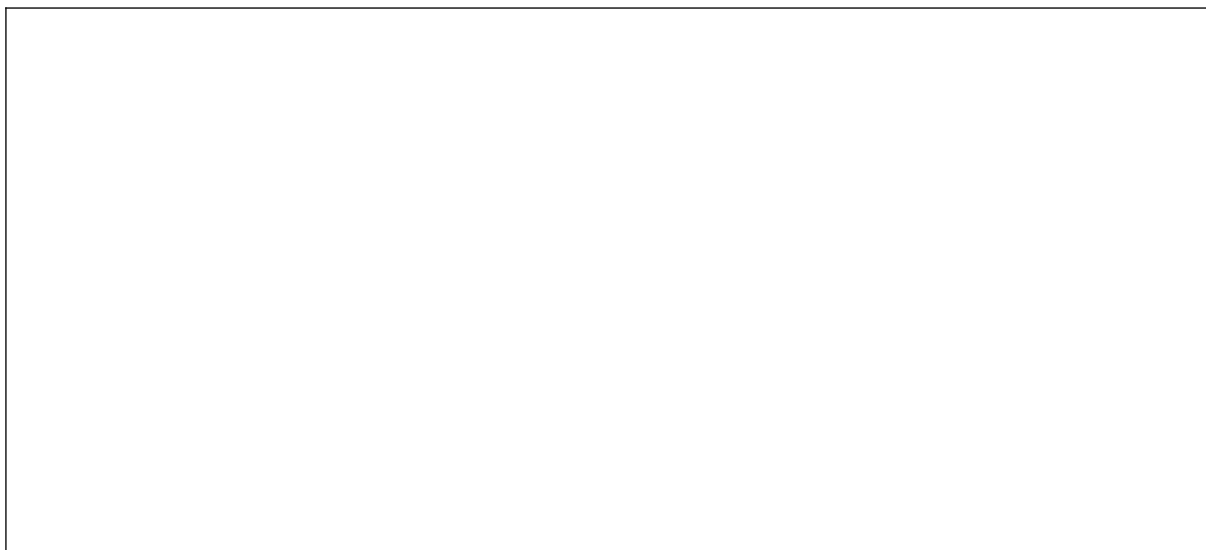
Draw your idea: How should the your home design look like?





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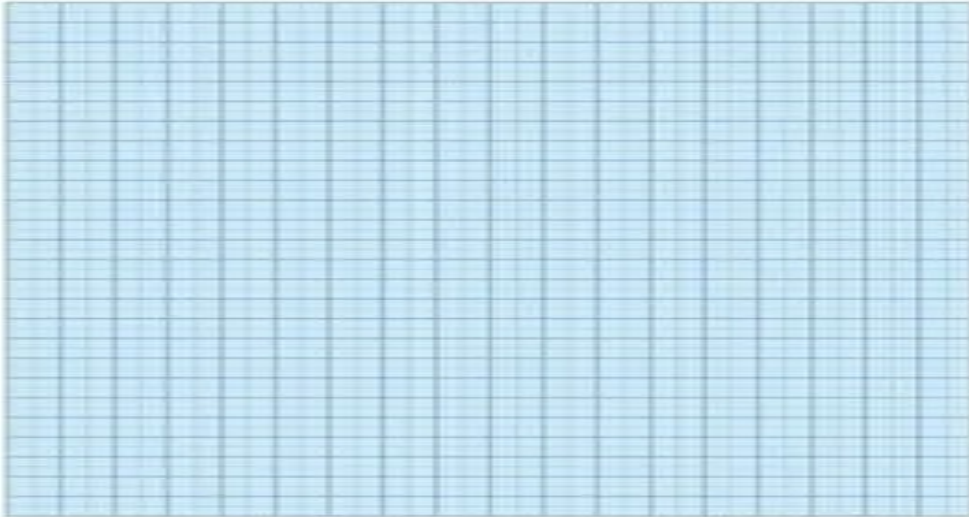
Cost and Efficiency Analysis Comparison (for short, medium and long term)

	Solar Energy	City Energy Line
Cost		
Efficiency		
Conclusion		



Draw a graph of the change in the amount of electrical energy produced from solar panels on a monthly and annual basis.

Monthly:



Annual:

