

Could our community be powered by solar energy?

Context	Solar energy production across the UK is mostly produced through large scale solar farms rather than photovoltaic cells on people's homes and public buildings. However, as home and business owners try to reduce their energy bills, more and more people are looking to see if solar energy production is feasible on a smaller and more personal scale.		
Length of time	Half day	Suitable locations	Town or village centre
Equipment needed	Land use map; compass; questionnaire		
Suggested delivery			Objectives and Key Skills
<p>Solar Power Potential Survey</p> <p>Students identify a number of public buildings in their local area (schools, places of worship, town/village halls, shopping parades, libraries etc.) and use these as the base of their survey (domestic residences can also be used if a larger sample is required). Firstly, students use a compass to score the building according to the orientation of its roof. Buildings who have roofs that face South, South East and South West should receive a score of 3, those that face East and West should score 2 and those that only have roofs that face North, North East or North West should score 1.</p> <p>Secondly, students should estimate the size of the roof of each building. This could be estimated in the field, or students could use a tool such as Google Earth satellite view to measure more precisely. The largest roofs should have a score of 3, medium sized roofs a score of 2 and the smallest a score of 1.</p> <p>Students then multiply the roof orientation score with the roof size score to give an overall solar potential score for each building. These scores can be noted on the land use map, using the actual numerical values, or students can shade the buildings red if they score 9 or 6, yellow if they score 4 and blue if they score 2 or 1.</p> <p>Solar Power Attitude Survey</p> <p>Students can design a questionnaire for members of the public. This should cover some personal information (such as age bracket, home tenure and profession type of respondent) so that analysis of the answers can include an element of finding patterns between different people and their attitudes to solar power. Questions should cover whether respondents have solar panels on their homes or businesses, if they have considered owning solar panels on their home, whether they are able to, what factors have influenced their choice to install or not install solar panels and how they feel about green energy in general. Students would need to give each respondent a unique numerical code so that their answers can be tracked against their personal information.</p>			<ul style="list-style-type: none"> • Students can use a variety of cartographic techniques to display their building orientation and roof data. This could be an opportunity for students to use GIS, with two comparable layers hosting this data. • Students can choose specific groups of people (for example, homeowners aged over 60) and see if there is any consensus in the way these respondents answered the questionnaire compared to the remaining respondents.
Potential risks to consider	<ul style="list-style-type: none"> • Students need to be careful when staring up at roofs to avoid looking directly into the sun. • Students should be careful when crossing roads and avoid stepping off the pavement in order to view buildings from different angles. 		
Possible follow-up activities	<ul style="list-style-type: none"> • Your school may be willing to provide energy consumption data to students for the school building. Students can then calculate how much energy solar panels might produce for the school and whether installation is economically feasible. 		
Useful links	<p>Energy Saving Trust https://energysavingtrust.org.uk/advice/solar-panels/</p> <p>Green Deal https://www.gov.uk/green-deal-energy-saving-measures</p>		