

Solar Power

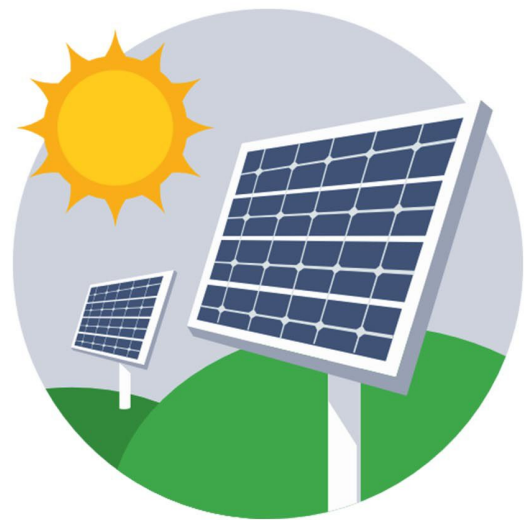
Learning objectives:

1. Students have an understanding of energy sources (fossil fuels, nuclear)
2. Students can define solar power in detail
3. Students can determine how solar energy is measured
4. Students can identify where and when solar power is best in the US

Lesson Format:

Estimated time: 45 minutes - 1 hour

What you'll need: Computer or Internet access



Introduction:

Many areas of the world receive a lot of sunlight but do not have reliable access to electricity. This lesson will teach students about solar power and how the amount of solar energy we can collect varies throughout the country. Students will learn about how solar power works and why it has been growing in popularity.

Begin the Lesson:

Begin your lesson by asking students to write down what they think they know about solar power. As a follow-up question, ask your students where the energy in their home comes from. Have them discuss their answers with their peers.

Solar Power

Keyword Search:

First, have your students research the top three energy resources in the US (coal, natural gas, nuclear, etc.) and write a 1-3 sentence summary of what they found. Second, have your students research what solar energy is and respond to these three questions:

1. What percentage of incoming solar energy reaches earth? What happens to the remaining percentage?
2. Do different locations in the US receive an equal or different amount of solar energy?
3. Does the amount of solar energy received change with time of day?

Problem Solving:

Assign each of your students a city in the United States. Have each student complete the following tasks:

1. Find the longitude and latitude.
2. What unit is solar energy measured in?
3. Using the NOAA Solar Calculator (<http://www.esrl.noaa.gov/gmd/grad/solcalc>)
How much solar energy does your city receive?
4. What time of year is it best (peak) / worst (less solar energy)?

Conclusion:

Have your class determine which city receives the most solar energy and which city receives the least. Where would solar panel installation be the most effective?