

Algebra 1 Solar Energy Lessons

Lesson	Description	Key Topics	Standards	Timeframe	Resources/Links
NEED Schools Going Solar-Activity 3 PV System Performance	A two-day lesson with opportunities for extension. Students get familiar with the NWE dashboard and other ways that photovoltaic output measurements are commonly reported.	Graphing covariate relationships, interpreting scatterplots and rates of change	A.REI.10 S.ID.6 F.IF.6	2 days	Schools Going Solar (use pages 10 through 12, 26 through 29, and 41 through 51) NWEnergy Dashboard[1]
NEED Energy Analysis - Parts One & Two	A two to three-day lesson. Students create graphs to track historical trends in sources of American energy production and per capita energy consumption, then use these to make predictions about how the future energy picture might change.	Creating equations, interpreting scatterplots and rates of change, average rate of change, distinguishing linear and exponential	A.CED.2 F.IF.6 F.LE.1 S.ID.6 S.ID.7 S.ID.8	2-3 days	NEED Energy Analysis (use pages 5-16) U.S. Energy Flow Archives (use for more recent energy documents; as of Feb 2019, this archive is updated through 2016) U.S. Monthly Energy Flow Data (Fairly up-to-date monthly data)
NEED Schools Going Solar-Activity 4 Solar Data Predictions	A one-day lesson. Students work in groups to generate a prediction about when their school's solar array will reach a given milestone for energy production.	Creating equations, calculating average rate of change	A.CED.2 F.IF.6	1 day	Schools Going Solar (use pages 12-13) NWEnergy Dashboard

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NEED Schools Going Solar-Activities 5 & 6 What Can Your Solar Panel Power?, PV Systems and the Environment	A full week. Students calculate the electricity needs of various appliances in the school and the building as a whole, compare it to the production of the school's array, and estimate how much of the school's need.	Solving and interpreting a formula to highlight a variable of interest	A.CED.4	5 days	Schools Going Solar (use pages 14 through 16, 23, and 32 through 38) NWEnergy Dashboard Copies of your school's electric bill (talk to Pat McHugh and/or Kara Tortorich) Inline electricity usage monitors
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