

Solar Powered City

Lesson Plan



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The Task

Solar panels collect energy from the sun so people can use that energy to power things in their homes. Is it possible to power an entire city by using only solar energy? New York City uses about 164,380 kilowatt hours of electricity each day. Usually, it takes 25 solar panels to produce about 5 kilowatt hours of electricity. How many solar panels would it take to power all of New York City for one day?

Materials

- Extra paper for students to sketch out ideas
- Manipulatives, such as cubes or chips
- Chart paper, for recording ideas for class discussion.

Facilitating Task

- As students work, circulate around the class, listening for places students may be stuck, and for strategies you may want to be shared with the class.
- Whole class discussion: Select a few students to share their approaches to discuss the math ideas in this task.

Misconceptions

- Students may have difficulty coordinating quantities and keeping track of what each number represents in the context of the problem (kilowatt hours, panels)
- Students may have difficulty working with the large number of kilowatt hours required for New York.

Suggested Prompts or Questions

Supporting thinking:

- What have you done so far? What will you need to figure out next?
- How will you know if your answer makes sense?
- What does that number represent in the story?
- How will you keep track of which number is the solar panels and which number is kilowatt hours?

Extending thinking:

- If we looked at the energy used in a different city, how could you use what you've already figured out to solve that problem quickly?
- What do you think about using solar power for large cities? Where could we put all those solar panels?