

# ACTIVITY GUIDE



## ENERGY MATTERS!

Carbon dioxide released from burning fossil fuels contributes to climate change. Participants experience the power and possibilities of fossil fuel-free wind and solar energy in the city.

### IN THIS KIT

- 2 low-voltage buzzers
- 1 3-cell (at 1.5 volts each) solar panel
- 1 wind turbine (fan connected to a low-volt generator/motor; raised stand)
- Platform with lego building (for solar panel to attach) and modeling clay hill (for turbine to attach)
- 2 flashlights (for lighting solar panels, if used indoors)
- Bulb information cards or backdrop

### IN THIS KIT (continued)

- Extra bulb sets in case of burnout
- Activity sign protected in plastic display

### BIG QUESTIONS

- What are different sources of energy?
- How can we use/access this energy?
- How do we harness wind & solar power?

### HOW TO SET UP

- 1) Place solar panel on top of the black house and attach to velcro strip on base. The round, black device at the base of the solar panel is a buzzer that will go off with enough light exposure. The cloth attached to the solar panel can be used to cover the panel to keep the buzzer off in high-light environments.
- 2) Place the base of the wind turbine into the indentation at the top of the “hill” on the landscape base (see right), with the fan blades pointing forward. Turning the blades clockwise, either by spinning with the hand or PREFERABLY blowing hard will make the buzzer buzz, as the rotating blades power the generator (the generator is constructed like a motor; a magnet attached to the fan blades is surrounded by copper wire, and turning the magnet within the wire generates charges the ions in the wire and causes an electric current to run from the wire and power the buzzer).

*NOTE: If the wires are disconnected, the device is in need of repair. Please contact the lender!*

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## FACILITATION GUIDE

(This works best if children are directed to the activities, while caretakers are engaged in conversation and display information. This script is written for one visitor at a time but can be adapted for groups.)

- Hi! Can you see if you can make either of the buzzers buzz! Both of these devices are connected to a buzzer. hey're already all wired up, so you don't need to worry about connecting anything, but you can pick them up and move them around if you want to!  
*(Help with clues or other suggestions so visitors understand the solar panel needs to be held up to a light source to generate enough electricity for the buzzer to buzz, and that wind - generally from blowing - will turn the motor enough to buzz that buzzer)*
- Do you think you could keep getting those buzzers to buzz, over and over again? What does it take to make them work?  
*(Engage with visitors about responses)*
- One neat thing about both of these types of energy (solar and wind) is that it doesn't take any fossil fuels to generate them. Both wind and solar energy are abundant in Pennsylvania, but they are also both underused. All it takes is more people asking for them, and more wind farms and solar grids will be installed. One way we can show we want more alternative power is by electing it on our electric bills, or by going online to our electric companies' websites.
- By switching to alternative energy sources, we can elect to use fewer fossil fuels to generate electricity, which means we will cause less heat-trapping CO2 to enter the atmosphere.

## FINISHED KIT



## ABOUT CUSP

CUSP helps urban communities explore climate impacts and solutions through active engagement with local examples.

