

Pre-Field Trip Activity

Grades 9-12



The Smart Energy Hub

We are pleased you'll be participating in the ComEd Smart Energy Hub program!

The following activities are suggestions to provide background knowledge and prepare students for the upcoming field trip.

Before the Trip: Activate Knowledge

Inform students that they will be visiting the ComEd Chicago Training Center. This is one place where overhead electricians train to do their job safely. Provide students with the brief job description for an overhead electrician below. Ask students to think about the kind of training an overhead electrician would need based on the job description provided and what they know about electricity.

Job Description - Overhead Electrician:

An overhead electrician is responsible for the construction and maintenance of overhead and underground electrical distribution and transmission systems. Duties include operating heavy equipment to dig holes, setting utility poles, and stringing wire sometimes while over 50 feet in the air. Overhead electricians will use tools of the trade to test and repair electrical lines in all weather conditions. Faint of heart need not apply!

Discuss that students will also learn about the smart technologies that ComEd is incorporating into their delivery system. Ask students to explore the ComEd Smart Grid/Smart Meter pages on the ComEd website:

<https://www.comed.com/technology/smart-meter-smart-grid/Pages/default.aspx>

Then allow students time to complete the Smart Grid and Smart Meter activity sheet.

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Introduce the following vocabulary that will be used during the field trip.

Meter – an instrument on a house or other building that measures and tells the amount of energy used, including when it was used

Substation – a place where the strength of electricity is changed on its way from the power plant to homes, schools, and businesses

Power lines – cables that carry electricity from the power plant to homes, schools, and businesses

Transformer – a machine that changes the strength of electricity traveling from the power plant to homes, schools, and businesses

Generator – a machine that makes electricity using spinning or moving parts

Circuit – a loop or path through which electricity flows

Kilowatt Hour - the measure of the amount of energy used in one hour

Name _____

Date _____



Smart Grid and Smart Meter

The smart grid uses technologies that combine computers with the electrical grid. The computer collects information about the grid so it can detect problems and either automatically fix them or alert someone trained to fix them. The computer also collects information about how much electricity is being used at a home, school, or business.

Research the ComEd website at:

<https://www.comed.com/technology/smart-meter-smart-grid/Pages/default.aspx>

Use the above link and its content to learn more about the smart grid and smart meters.

Then complete the questions below.

1. Explain how the smart grid or a smart meter works in your own words.

2. What questions do you have about the smart grid or smart meters? Or what would you like to learn more about?

3. Name some smart technologies.

4. How do you think smart technologies can improve communities?