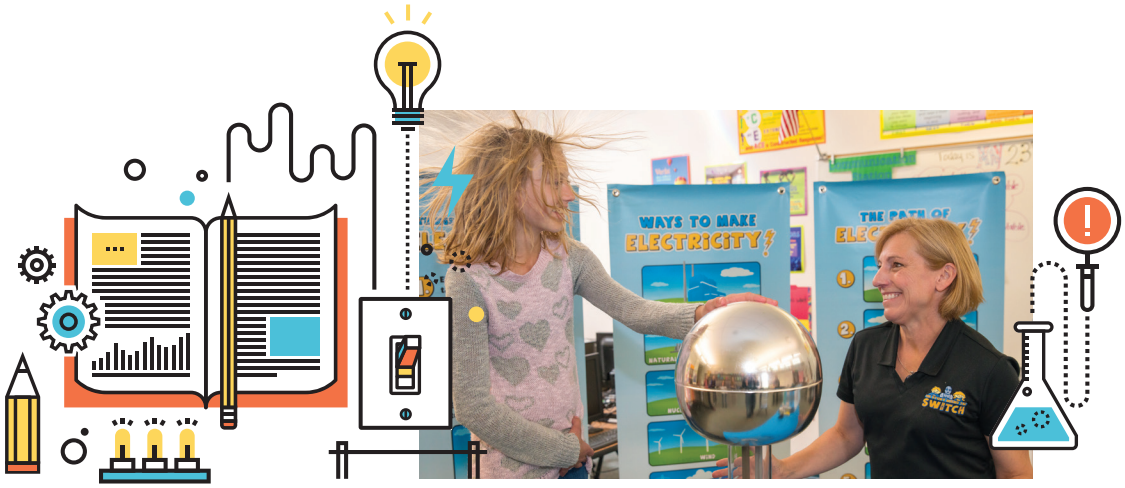

Story Behind the Switch

Presented by Tri-State Generation and Transmission Association, Story Behind the Switch is a traveling program with several interactive electricity demonstrations:

- 45-60 minute electrical program delivered by Tri-State and your local co-op at no cost to the school
- Teaches students about electricity and safety with hands-on activities including a Van de Graaff generator, plasma ball and more
- Session covers:
  - diverse energy resources
  - energy efficiency
  - the path of electricity from the power plant to the home
  - electricity cooperative career paths
  - conductors vs. insulators
- Engaging for students K-12; presentation adjusted based on age of students
- Includes a lesson plan to outline program (see back)

For more information contact Michelle Pastor, education program advisor for Tri-State, at 303-254-3187 or mpastor@tristategt.org.

K-12	45-60 minutes	member benefit
GRADES	LENGTH	COST

STORY BEHIND THE SWITCH

TRI-STATE G&T

MORGAN COUNTY REA
Your Touchstone Energy® Cooperative
The power of human connections

Lesson Plan

Motivation

Welcome, background of Story Behind the Switch,
Three Properties of Electricity quiz

1. Electricity is lazy! It always takes the shortest, easiest path.
2. Electricity always wants to go to the ground.
3. Electricity travels on the outside of the wire.

Information

- Difference between natural and man-made electricity (lightning, the human body and static)
- Different ways of making electricity (wind, solar, hydro, natural gas, nuclear and coal) and the importance of varied ways of generating electricity to meet the demand. Each generation method has advantages and disadvantages.
- Coal facts (coal piece)
- The mining process (machinery, reclamation process)
- How we generate electricity in a coal-based power plant (pulverized coal)
- Electrical transmission (high voltage wires, substations, distribution wires, transformers), wire samples 345KV, 500KV, 7.2KV 240 volt
- Insulators vs. conductors
- Value of electricity
- Be responsible energy consumers, not wasteful

Summary

We trace the path of electricity from the power source to home, school or business. (PowerPoint presentation along with three 7-foot graphic banners to visually reinforce the information.)

Outdoor safety discussion

- Dangers of flying kites, climbing trees near power lines
- Using farm equipment, ladders, tent poles near power lines
- Digging near underground power lines
- What to do if there's a power line on the ground
- What to do if you are in a car that runs into a utility pole
- How to exit a vehicle if an emergency situation occurs (hop 33 feet away from the car with both feet together)

Lineman and safety equipment

What linemen wear and why they are the only people who can handle wires (rubber sleeves, gloves, safety glasses, hardhat)

Inside safety discussion

- Water and electricity don't mix (bathrooms, kitchens)
- Don't pull cords, insert objects into outlets or overload outlets

Practice and application, demonstrations and kinesthetic learning

- Efficiency and electrical meter (shows the amount of electricity different types of light bulbs use)
- Van de Graaff generator (static electricity, electricity wants to go to ground)
- Plasma ball (insulators, electricity wants to go to ground, electromagnetic fields)

Teacher packet includes:

- Full-color workbook containing lesson plans
- Reproducible student activities
- Fascinating facts about electricity
- For each student
  - pencils
  - stickers
  - safety checklists
  - energy efficiency checklists
  - presentation evaluation form

Schools provide if possible:

- 8-foot table
- Power outlet