

ELEMENTARY ARTICLE: What's A Short Circuit?

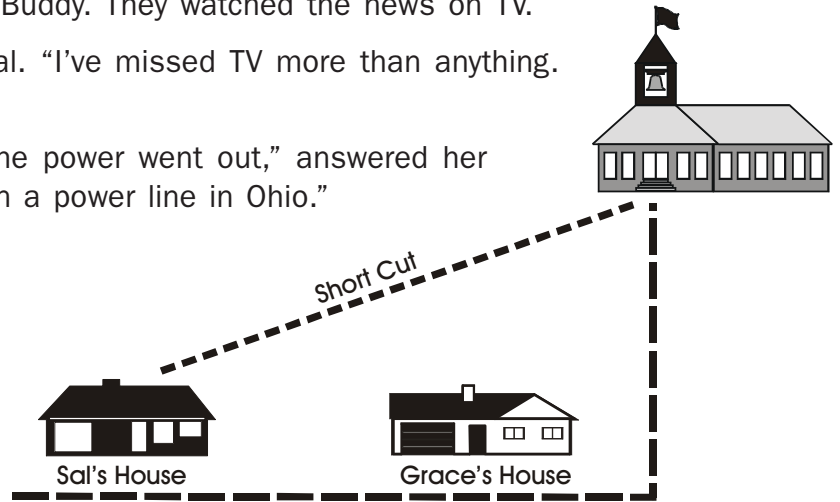
Sal sat on the couch with her mother, patting Buddy. They watched the news on TV.

"I'm so glad the power is back on," sighed Sal. "I've missed TV more than anything. Can we change the channel?"

"In a minute, Sal. They're talking about why the power went out," answered her mother. "They think there was a short circuit in a power line in Ohio."

"What's a short circuit?" asked Sal.

"A short circuit is electricity taking a shorter path because a wire is broken. It's like when you take the short cut through the field to school. You get to school faster, but you don't get to walk with Grace, because you don't go by her house.



"Short circuits are the reason we make sure Buddy doesn't chew on the electric cords. When a lamp is plugged in, it is connected to an electric circuit through the outlet. Electricity runs from the outlet to the lamp and back to the outlet through two wires in the cord. The two wires don't touch each other. They are separated by an insulated covering. The electrons flow to the lamp through one wire in the cord, through the light bulb, and back to the outlet through the other wire in the cord.

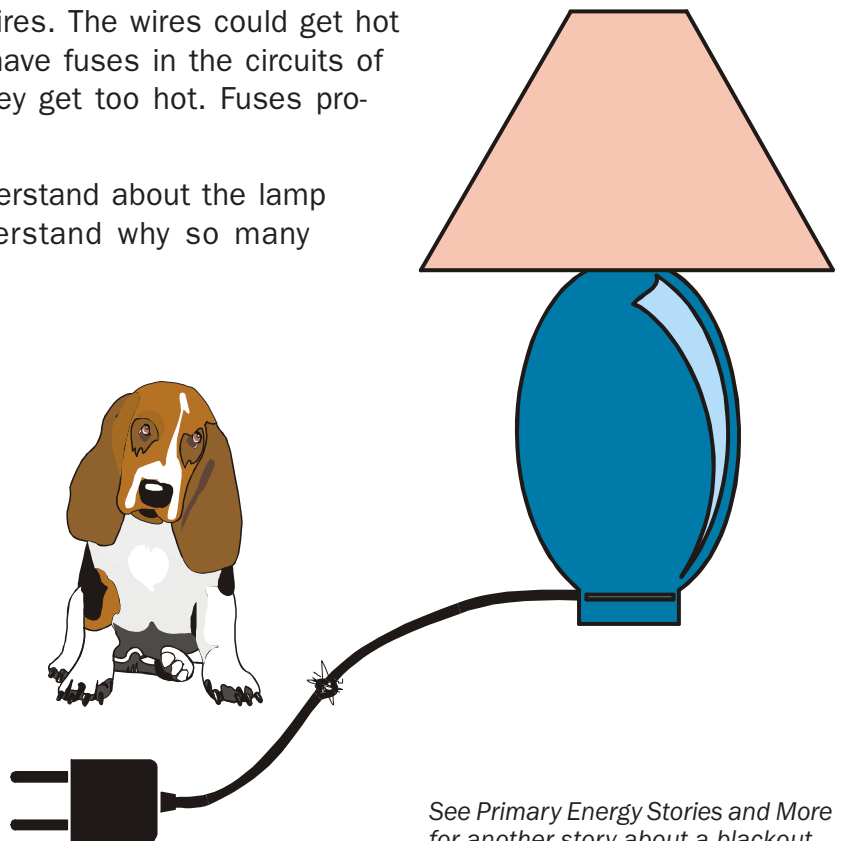
"If Buddy chews on the cord, he can break the insulation covering the wires. The wire going to the lamp could touch the wire going back to the outlet. The electrons would flow from one wire to the other through this shorter path, the short circuit. No electrons would flow to the lamp.

"The short circuit could make the wires get very hot because so many electrons are flowing so quickly through the wires. The wires could get hot enough to cause a fire. To keep us safe, we have fuses in the circuits of our house. Fuses shut down the circuits if they get too hot. Fuses protect our house from electrical fires."

Sal looked at Buddy and the lamp. "Ok, I understand about the lamp and the short circuits. But I still don't understand why so many people lost power for so long."

Her mom answered, "Lots of power lines are connected to each other in the United States and Canada. One of the big lines had a short circuit. The electricity flowed through the other power lines. Some of these became too hot and also short-circuited. Just like in our house, these big circuits shut down if they are getting too hot. A lot of power plants shut their lines down so they would not burn. It took a long time to make sure all the short circuits were fixed and get everything working again."

Sal smiled and said, "I'm glad the power's back on. Can I watch my show now?"



See Primary Energy Stories and More for another story about a blackout.