# Puzzle #83: Buzz kill?

# MoeZone

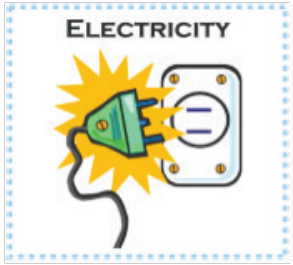
Real challenges for people living in the real world

**Be safe!**

Can you get hurt?
Can someone else get hurt?

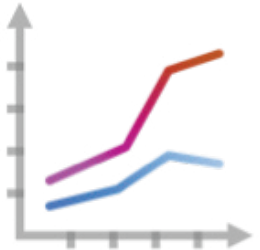
How many things do you have in your house that use electricity? Which ones do you think use the most?

**ELEMENTARY**




Compare the electricity you use in your house. Has the number of electrical uses increased or decreased over the years? Where does your electricity come from?

**ADVANCED**



Populations are increasing and electronic gadgets are more prevalent. How are we going to power all of the electricity needs in our houses in the years to come?

**PROFESSIONAL**

Send any solutions by Dec. 10, to Moe Benda at mbenda@d.umn.edu.
Best solutions and next puzzle will appear in HTF on Dec. 15.

**Moe's quote:**
You can never return to the same river.

## MoeZone Puzzle #82 solutions: That's pretty slick!

### ELEMENTARY PUZZLE

***Some ice is very slippery and some ice is quite sticky. Why do you think there is a difference?***

Ricky J (Lakeland): Temperature. When it's cold out—I mean, really cold out—the ice kind of sticks to you, but when it's warmer, it seems slicker.

***MOE'S NOTE: Why do you think that is?***

### ADVANCED PUZZLE

***What is the slipperiest stuff you know of? What makes it so slippery?***

Well, there are slippery solids and there are slippery liquids. Oooey, gooey liquids like oil and plant goo top the list for me and these are all good for reducing friction between two solid surfaces. As for the solids, Teflon is pretty slick! Nothing sticks to it.

***MOE'S NOTE: If you search "The Slipperiest Substance on Earth" you'll find an article about how non-stick surfaces were discovered by accident and the history of Teflon! There are other coatings we are researching, but this one is the most famous!***

### PROFESSIONAL PUZZLE

***Non Stick pans are great! How are they made? Why don't things we cook stick to them?***

Most of the non stick pans come from similar coatings like Teflon which is a registered trademark of DuPont and is really a polymer: PTFE, polytetrafluoroethylene. The coating is painted on a metal surface and is very stable to normal cooking. But, as we all know, it can scratch very easily and loose its nonstick property. Also, if you heat it up too hot, the coating can break down—but that doesn't come from normal use unless you cook at around 600F.

***MOE'S NOTE: Look at the Advanced Puzzle Moe's Note to find out more! But why doesn't the Teflon slip off the pan? Visit https://www.scientificamerican.com/article/if-nothing-sticks-to-tefl/.***