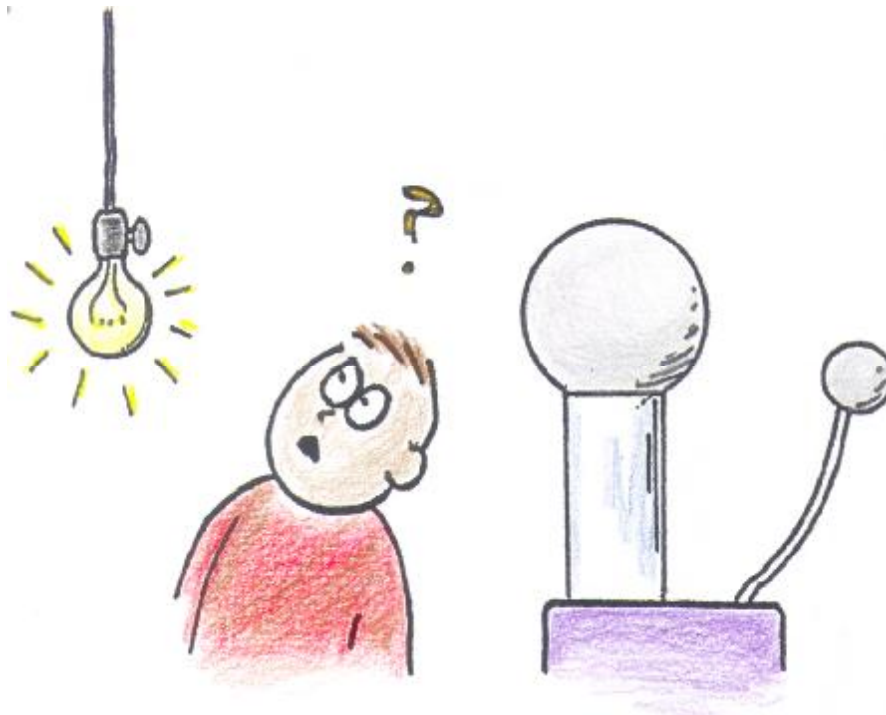


NEXT-TIME QUESTION

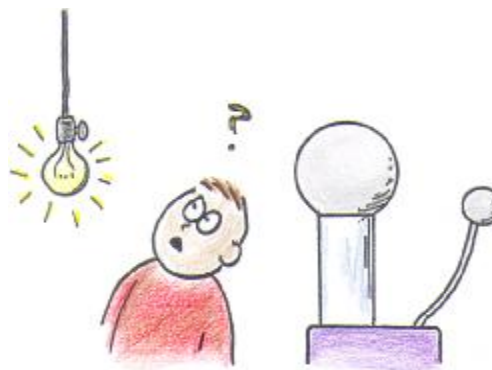


Which is more dangerous, touching a faulty 110-volt light bulb or a Van de Graaff generator charged to 100,000 volts? Why?



NEXT-TIME QUESTION

Which is more dangerous, touching a faulty 110-volt light bulb or a Van de Graaff generator charged to 100,000 volts? Why?



Answer:

Touching the Van de Graaff generator may be a hair-raising experience, but touching the 110-volt faulty fixture could be the last thing you do. The charged generator nicely illustrates the difference between electric potential energy and electric potential. Electric potential is electric potential energy *per charge*. Although the generator may be charged to an electric potential of 100,000 V, the amount of charge is relatively small. That and the short time of charge transfer is why you're normally not harmed when it discharges through you. In contrast, if you become the short circuit for household 110 volts, the sustained transfer of charge is appreciable. Less energy per charge, but many, many more charges!

