

CONDUCTORS — *and* — INSULATORS



ESP
It's Science Time!

Sasha, Darrell, and Maria were at Maria's house. Sasha and Darrell had come to see the new dog Maria's family had adopted. They were in the family room playing with the dog on the floor.

"Now I understand why you named him Volt!" said Darrell. "He has more energy than a power plant."

"Darrell, sometimes your sense of humor is really shocking!" said Sasha. "By the way, Darrell, how many gorillas does it take to change a light bulb?"

"Just one, Sasha, but it takes a lot of light bulbs!" said Darrell.

"Okay you two. That is enough of the bad jokes," said Maria. "But you are right, Darrell. We named him Volt because he was so full of energy. Do you want to go outside and take Volt for a walk?"

"That sounds like fun," said Sasha.

The three friends went outside with Volt. They walked down the sidewalk together.



"I am sorry I got carried away with the energy jokes, Maria. I guess I'm still thinking about that dream I had a while ago," Darrell said.

"There is no need to apologize," said Maria. "I think your jokes are funny, and that was a weird dream."

"What dream?" asked Sasha. "I don't think you told me about it."

"I had a dream that I was traveling through high voltage wires. I started out at the power plant. I then followed the same path as the electricity. We ended up all the way back at my house," said Darrell. "There was this man in a hard hat named Mr. Charge. He was telling me all about electricity and where it comes from. That's how I learned so much about electricity. When I woke up, I felt like the dream had really happened."

"Now that is what I call a dream," said Sasha.



Just then, Volt started to bark. He began pulling at the leash Maria was holding. Volt had noticed a squirrel in a tree. Volt's barking scared the squirrel. It jumped onto a power line and quickly crossed the street.

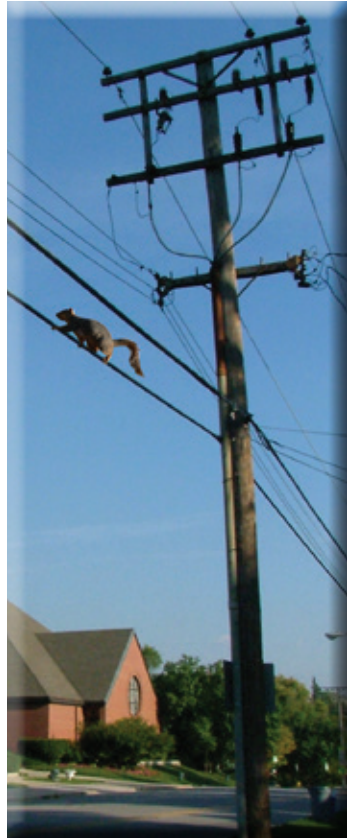
"Darrell, I have a question to ask you," Maria said. "How can squirrels safely walk on those wires up there? Don't those wires contain very powerful electricity?"

"Yes, Maria, they do," answered Darrell. "Some squirrels are not as lucky as that one was. That wire must have been well insulated."

"What does that mean?" asked Sasha.

"It means that the wires are covered with a kind of material that electricity cannot easily pass through," said Maria.

"That is exactly what it means," Darrell said. "Materials like glass, plastic and rubber are insulators. They are used to cover electrical wires to keep the flow of electricity from going where we don't want it to go."



"I have noticed that where the wires are attached to the utility poles, sometimes there are glass bell shaped things," Sasha said. "Are those the insulators?"

"I think you are right," Maria added. "If the wires were not insulated where they are attached to the poles, the electricity might travel down the pole and here to the sidewalk."

"That would be really unsafe," Darrell said.



“I was driving with my mom one day during a bad rain storm,” Sasha said. “A utility pole had been struck by lightning. It was lying down in the road. The police closed the whole street and made all the traffic go another way.”



“That was really dangerous!” said Darrell. “It was even worse because the road was wet from the rain. Water is a conductor of electricity. That is why you should always be careful using electrical appliances around water. Water and electricity together is a dangerous combination.”

“What other materials are good conductors?” asked Maria.

“Most electrical wires are made from copper,” Darrell said. “It is an excellent conductor of electricity.”



The three friends had walked all the way around the block. They were now back at Maria's house. It was getting near dinnertime.

"I have to go home now," Sasha said. "My mom is making macaroni and cheese for supper tonight. Thanks for letting me play with your new puppy, Maria."

"I had a really good time, too," said Darrell. "But before I go I have one last question to ask you both."

"What?" asked Maria and Sasha.

"How many girls does it take to change a light bulb?" grinned Darrell.

Maria rolled her eyes. However, Sasha thought of a good answer.


"Absolutely none!" said Sasha. "They are smart enough to use fluorescent bulbs. They hardly ever need changing!"

Darrell just smiled. He waved to his two friends as he walked down the sidewalk.



Electrical Circuits
Conductors and Insulators

Correlation

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