

July 2004 - Electrical Safety IQ

According to the latest statistics from the National Fire Protection Association (NFPA) nearly three people die each day in residential electrical related home fires and accidental electrocution in the home. Statistics from the Occupational Safety and Health Administration (OSHA) indicate that 285 people were electrocuted on the job in 2001. One of the key elements to electrical safety is awareness. Understanding some of the basics about electrical safety is important both on-the-job as well as in the home. Therefore, you might want to consider using this electrical safety quiz at work with your employees and then encouraging them to take it home and share the learning experience with the family. It's important to respect electricity and use electrical products safely in the home, school and workplace.

Take the test and see how well you score. It's easy, it's fun, and it's important for both you and your family.

1. Electricity travels at the rate of:

- A. 120 miles per hour.
- B. 5,280 feet per second.
- C. 186,300 miles per second.

2. True or False: It's OK to use black electrical tape to repair a frayed power cord, or to splice a power cord, as long as you cover all exposed wire.

3. If a fuse blows or circuit breaker trips, the first thing you should do is:

- A. Call your electric company.
- B. Determine what caused the fuse to blow or the breaker to trip.
- C. Replace the fuse or reset the breaker.

4. True or False: It's safer to run an extension cord under a rug than it is to leave it out in the open.

5. What are GFCIs?

- A. Ground fault circuit interrupters.
- B. General formula cellular ions.
- C. Gel-filled cylinder insulators.

6. Which floor lamp gets hotter: one with a standard incandescent bulb or one with a halogen bulb?

7. What does the third prong on a 3-prong plug do?

- A. Provides a path to ground for electricity that may "leak" from an appliance, equipment or product.
- B. Provides extra power for equipment requiring high voltage.
- C. Helps to hold the plug firmly in the outlet.

8. True or False: It's OK to store flammable materials near electrical equipment such as disconnect and wall switches or power equipment because they don't cause sparks.

9. True or False: All overhead power lines are completely insulated.

10. Why can a bird sit on a power line and not be electrocuted?

- A. It is not touching the ground.
- B. It has no metallic substance in its body.
- C. It has no water in its body.
- D. Its feathers act as insulation.

11. **True or False:** It is safe to climb a tree located near a power line as long as the limbs aren't touching the line.

12. **True or False:** It is safe to touch a power line with a pole, as long as the pole is made of plastic.

13. **How much voltage is needed to hurt or kill people?**

- A. 120 volts.
- B. 240 volts.
- C. More than 240 volts.
- D. Any voltage.

14. **True or False:** A car is a safe place to be in an electrical storm because it has rubber tires.

15. **Where is the safest place to be during a lightning storm?**

- A. In a car.
- B. In the middle of a field with no trees.
- C. In a house.
- D. Lying face down on the ground.

16. **True or False:** Using a telephone during a lightning storm is dangerous.

17. **If you see a downed power line or low-hanging power line, you should:**

- A. Move it out of the way and call your local power company.
- B. Stay clear and call the power company immediately.
- C. Don't worry about it, because your power company already knows about it.

18. **Which of the following can conduct electricity?**

- A. Metal.
- B. Tree limbs.
- C. Human body.
- D. All of the above.

19. **True or False:** Water is the best conductor of electricity.

20. **Most utility power lines are:**

- A. Bare and dangerous to touch.
- B. Insulated and touchable.
- C. Bare but OK to touch.

Answers

1. **C.** Electricity travels at the rate of 186,300 miles per second (the speed of light).

2. **False.** The black tape - usually vinyl - is not rated to handle the heat generated by electricity running through wires. It will melt and burn.
3. **B.** Learn what caused the fuse to blow or the breaker to trip before replacing or resetting. If you can't find out, call an electrician.
4. **False.** If a cord runs under a rug, you can't inspect it for damage, and an overheated one can ignite floor covering. Remember: an extension cord is not a substitute for household wiring. They are for temporary use only. Store the cords away when you're through using them.
5. **A.** Ground fault circuit interrupters (GFCI) are used in both the home and workplace. In the home they should be located in areas that can get wet and are installed on electric wiring at wall outlets. In the workplace, GFCI should be used where the employees are exposed to potential line-to-ground shock hazards. This is especially important in the workplace where portable electrical equipment is being used in wet or damp areas in contact with earth or grounded conductive surfaces. The GFCI should always be located as close as possible to the electrical equipment it protects.
6. The **halogen bulb** operates at a much higher temperature. Don't place halogen floor lamps near draperies, clothing or other combustible materials, or in children's rooms. Shut them off when you leave the room for an extended period.
7. **A.** The third prong provides a path to ground to protect the equipment and user from electric shock. You should never remove the third prong in an attempt to use a 2-prong outlet.
8. **False.** It is unsafe to store flammable materials near any electrical equipment because a spark could jump unexpectedly.
9. **False.** Not all overhead power lines are insulated. Many overhead lines are partially insulated, but they are still dangerous to touch.
10. **A.** Birds can safely sit on power wires because birds are not touching the ground or any other grounded object. If a person standing on the ground or on the pole touched the same wire, the person would be killed.
11. **False.** It is not safe to climb a tree located near a power line at any time. Electricity has the ability to "jump" from the power line to the tree, and could electrocute someone in the tree.
12. **False.** It is not safe to touch a power line with any pole. The same goes for an antenna or other objects.
13. **D.** Any voltage can hurt or kill people.
14. **False.** While cars are a very safe place to be, it is not the tires that protect you. Your tires would have to be about a mile thick and made of solid rubber to afford you adequate protection. It is actually the metal that is surrounding you that affords the protection. This is due to something called the "skin effect," which means that electricity, like lightning, will travel only on the surface of enclosed metal objects. So while your car may be hit by lightning, as long as you stay inside, you are safe, provided that you have a metal car that is not a convertible.
15. **C.** By far the safest place to be during an electrical storm is in a house or building. The metal plumbing and wiring in the walls of the building form a protective barrier. It is

important to remember not to be touching that metallic "cage" which means staying away from electrical appliances, plumbing fixtures and wiring during an electrical storm.

16. **True.** Lightning can strike telephone and electrical wires and travel into your house, through your phone cord, into your telephone and into the handset. Cordless phones are not dangerous because there is no physical connection to the wires. But you should not use your cordless phone during an electrical storm to call your neighbor who may not have a cordless phone.

17. **B.** If you see a downed power line or a low-hanging one, you should stay clear and call your electric company immediately.

18. **D.** Metal, tree limbs and the human body can all conduct electricity.

19. **False.** Silver is the best conductor, but water is a good one and does carry electrical current.

20. **A.** Most electric utility lines are bare and dangerous to touch.

So, How Did You Do?

Score	Rating
20 correct	You can work for an electrical company.
15 to 19 correct	You missed the trick questions.
1 to 14 correct	You learned important information.
None correct	You chose wrong answers on purpose.