

Electrical & Natural Gas Safety World Video

Episode 1 – Electricity Basics

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. Which of these carries electricity from power plants to substations?

- | | |
|-----------------------|--------------|
| a) steel pipes | c) outlets |
| b) transmission lines | d) windmills |

2. What does a substation do?

3. Unless it's interrupted, electricity flows in a closed path called

- | | | | |
|------------|--------------|------------------------|--------------|
| a) a route | b) a circuit | c) an electrical panel | d) an outlet |
|------------|--------------|------------------------|--------------|

4. Electricity is always looking for the easiest path to the

- | | | | |
|--------|---------|----------|-----------|
| a) sky | b) plug | c) house | d) ground |
|--------|---------|----------|-----------|

5. What could happen if you touch a circuit in which electricity is flowing?

Electrical & Natural Gas Safety World Video

Episode 2 – Conductors & Insulators

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. Why are bare electrical wires so dangerous?

2. An example of an insulator, which does *not* allow electricity to flow through it easily is

- | | |
|--|-----------------------|
| a) the plastic-like coating on power cords | c) an aluminum ladder |
| b) metal wires | d) a metal fork |

3. An example of a good conductor that allows electricity to flow through it easily is

- | | | | |
|-----------|----------|----------|------------|
| a) rubber | b) glass | c) water | d) plastic |
|-----------|----------|----------|------------|

4. Why is the human body a good conductor of electricity?

5. What could happen if you overload an outlet with too many plugs?

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Episode 3 – Outdoor Electrical Safety

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. If a kite you are flying gets caught on a power line, why is it unsafe to touch the string?

2. What should you do before climbing any tree?

3. Why is it unsafe to climb into an electrical substation?

4. What number should you call before you dig?

- a) 911
- b) 411
- c) 811
- d) 611

5. Ladders and long tools should be kept at least how far away from power lines?

- a) 10 feet
- b) 5 feet
- c) 3 feet
- d) 2 feet

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Episode 4 – Indoor Electrical Safety

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. True or False: If you contact electricity in your home you could be killed.

2. Why is it dangerous to remove stuck toast from a plugged-in toaster with a metal fork?

3. Why is it dangerous to balance a plugged-in blow dryer on the edge of a full bathtub?

4. Why is it dangerous to run a power cord under a rug?

5. Which of the following is *not* an electrical hazard?

- a) a plugged-in curling iron on the edge of a sink full of water
- b) running the cord to your computer under the rug to the nearest outlet
- c) removing stuck toast from an unplugged toaster
- d) two power strips full of plugs that are both plugged into the same outlet

Electrical & Natural Gas Safety World Video

Episode 5 – Fallen Power Lines

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. If a power line falls on your car, you are safe in the car and you should stay there until you are told to get out by

- | | |
|--------------------|---------------------------|
| a) your mom or dad | c) anyone inside the car |
| b) utility workers | d) anyone outside the car |

2. What is the safest way to exit a car with a power line on it if you must get out due to fire or other danger?

3. Why should you land with your feet together and shuffle away when you are leaving a car with a power line on it?

- a) It takes less of your energy.
- b) You can travel farther that way.
- c) You might create a spark.
- d) If your feet remain together your legs cannot form a circuit with the electricity in the ground.

4. True or False: When leaving a car with a power line on it, it is safe to touch the car and the ground at the same time.

5. If you see a fallen power line anywhere, do NOT

- a) stay far away b) touch it c) call 911 to report the fallen line d) warn others to stay away

Electrical & Natural Gas Safety World Video

Episode 6 – Natural Gas Basics

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. Which of the following is *not* true about natural gas:

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|--|------------------------------|
| a) it is found deep in the earth | c) it comes from fossils |
| b) it is produced in electric power plants | d) it has no odor of its own |

2. What does a natural gas leak smell like?

3. What should you do if you smell a gas leak in or around your home?

4. Which of the following is an important safety precaution around natural gas?

- a) blow out the pilot light in an appliance if you see it
- b) cover your gas water heater with a blanket
- c) don't put flammable items near the stove or water heater
- d) do not use electricity and natural gas at the same time

5. What could happen if paint thinner or other flammable liquids were to spill near a natural gas water heater or stove?

- | | |
|---------------------------------------|--|
| a) it would smell bad | c) it could cause an explosion or fire |
| b) food would burn if you are cooking | d) you would run out of gas |

Electrical & Natural Gas Safety World Video

Episode 7 – Gas Pipeline Safety

Study Sheet

Directions: Fill in the blank or circle the correct answer for each question.

1. When should you call 811?
 - a) in case of any emergency
 - b) when you need help finding a phone number
 - c) when your electricity goes out
 - d) when you are planning a digging project

2. What does the 811 service do?
 - a) they loan you digging equipment
 - b) they arrange for local utilities to mark buried lines
 - c) they give you permission to dig on private property
 - d) they repair your gas appliances when they break down

3. This episode shows five signs of a natural gas pipeline leak. List at least three of them:

4. Which of the following is okay to use near a gas leak?
 - a) flashlight
 - b) cell phone
 - c) light switch
 - d) none of the above

5. If you smell a gas leak in your home, you should
 - a) use your phone to call 911 right away
 - b) ignore it and hope it goes away
 - c) go to a neighbor's to call your gas utility
 - d) try to find the leak yourself

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Study Sheet Answer Key

Episode 1 – Electricity Basics

1. b) transmission lines.
2. A substation reduces the strength of high-voltage electricity.
3. b) a circuit.
4. d) ground.
5. If you touch a circuit in which electricity is flowing, electricity will travel through you to the ground and give you a serious or fatal shock.

Episode 2 – Conductors & Insulators

1. Bare electrical wires are dangerous because there is no insulating material protecting you from the electricity in the circuit. If you touch a bare wire, you could be shocked.
2. a) the plastic-like coating on power cords.
3. c) water.
4. The human body is a good conductor of electricity because the body is 70% water and water is an excellent conductor.
5. If you overload an outlet with too many plugs it could cause a fire.

Episode 3 – Outdoor Electrical Safety

1. It is unsafe to touch the string of a kite that is caught on a power line because the electricity in the line could use the string, the kite, and you as its path to the ground, and you could get shocked.
2. Before climbing any tree, look all around the tree to make sure there are no power lines running near it.
3. It is unsafe to climb into a substation because contacting the equipment inside could shock or kill you.
4. c) 811.
5. a) 10 feet.

Episode 4 – Indoor Electrical Safety

1. True.
2. Removing stuck toast from a plugged-in toaster with a metal fork is dangerous because the fork could act as a conductor for the electricity in the toaster, and you could be shocked.
3. Balancing a plugged-in blow dryer on the edge of a full bathtub is dangerous because if the dryer falls in, it will energize the water and create a major shock hazard.
4. A power cord that is under a rug could get stepped on a lot. This would damage the cord insulation and cause a shock or fire hazard.
5. c) removing stuck toast from an unplugged toaster.

Electrical & Natural Gas Safety World Video

Study Sheet Answer Key

Episode 5 – Fallen Power Lines

1. b) utility workers.
2. The safest way to exit a car with a power line on it is to jump as far away from the car and the power line as you can. Do not touch the car and the ground at the same time. Land with your feet together and shuffle at least 20 yards away.
3. d) If your feet remain together your legs cannot form a circuit with the electricity in the ground.
4. False.
5. b) touch it.

Episode 6 – Natural Gas Basics

1. b) it is produced in electric power plants.
2. A natural gas leak smells like rotten eggs. (Students might also describe this odor as sulfur-like.)
3. If you smell a gas leak in or around your home, leave and call your gas utility from a safe location.
4. c) don't put flammable items near the stove or water heater.
5. c) it could cause an explosion or fire.

Episode 7 – Gas Pipeline Safety

1. d) when you are planning a digging project.
2. b) they arrange for local utilities to mark buried lines.
3. The signs of a natural gas leak include the following: a smell of rotten eggs; a hissing or roaring sound; dirt being blown into the air; continual bubbling in water; grass or plants that are dead or dying for no apparent reason.
4. d) none of the above
5. c) go to a neighbor's to call your gas utility.