Electrical Circuits Unit Teacher Masters/Visual Pack: Table of Contents

Introductory Letter to Families

Family Links

Visuals

2012 Edition

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Dear Families,

Our class is beginning the Science Companion® Electrical Circuits Unit, filled with hands-on experiences to make the abstract, but immensely relevant, concept of electricity accessible to students.

Through a variety of explorations, students will discover the basics of electricity. They will observe, describe, and investigate static electricity and low-voltage current electricity. They will experiment with simple circuits in this introduction to electrical circuits.

During the Electrical Circuits Unit, the students will:

- Discover what happens when something becomes electrically charged.
- Test a variety of materials to understand that electrically charged objects attract or repel each other.
- Try out ideas about how to light a bulb with a battery and wire.
- Recognize and use the components in a battery-bulb circuit.
- Make a circuit with a battery and motor.
- Explore conductors and insulators of electric current.
- Recognize electrical hazards and the safe use of electricity.

You and your child can explore this rich topic together at home by:

- Reading electricity-related science books together that your child checks out from the class Science Center or the local library.
- Visiting the web site at **www.sciencecompanion.com/links** to find a list and descriptions of recommended web sites about electricity.
- Working together on the Family Link activities and homework that are sent home from time to time. Your child may also want to repeat and vary some of the activities we do in class, as well as explain what they discovered and learned. Try to encourage their independent experimentation at home.

The Electrical Circuits Unit will be fun! We hope the children will bring their discoveries and enthusiasm home, inviting you to learn alongside them—asking questions, discussing their work, and sharing their adventures in science.

Sincerely,

Name: _____ **Date:** _____

Family Link with Science—Homework

Batteries

Your child is studying electricity in science class. Today we began investigating electric current, and used a battery as an energy source for lighting a bulb. Please assist your child with identifying and opening appropriate battery-operated toys and devices (such as clocks and flashlights).

Look around your home for examples of toys and other things that work with batteries.

1. List the examples you find:

2. Open one of the objects, and take out the batteries. Look where the batteries were. Can you tell how they were connected?

Please return to class by _____.

Name: _____ **Date:** _____

Family Link with Science—Home Activity

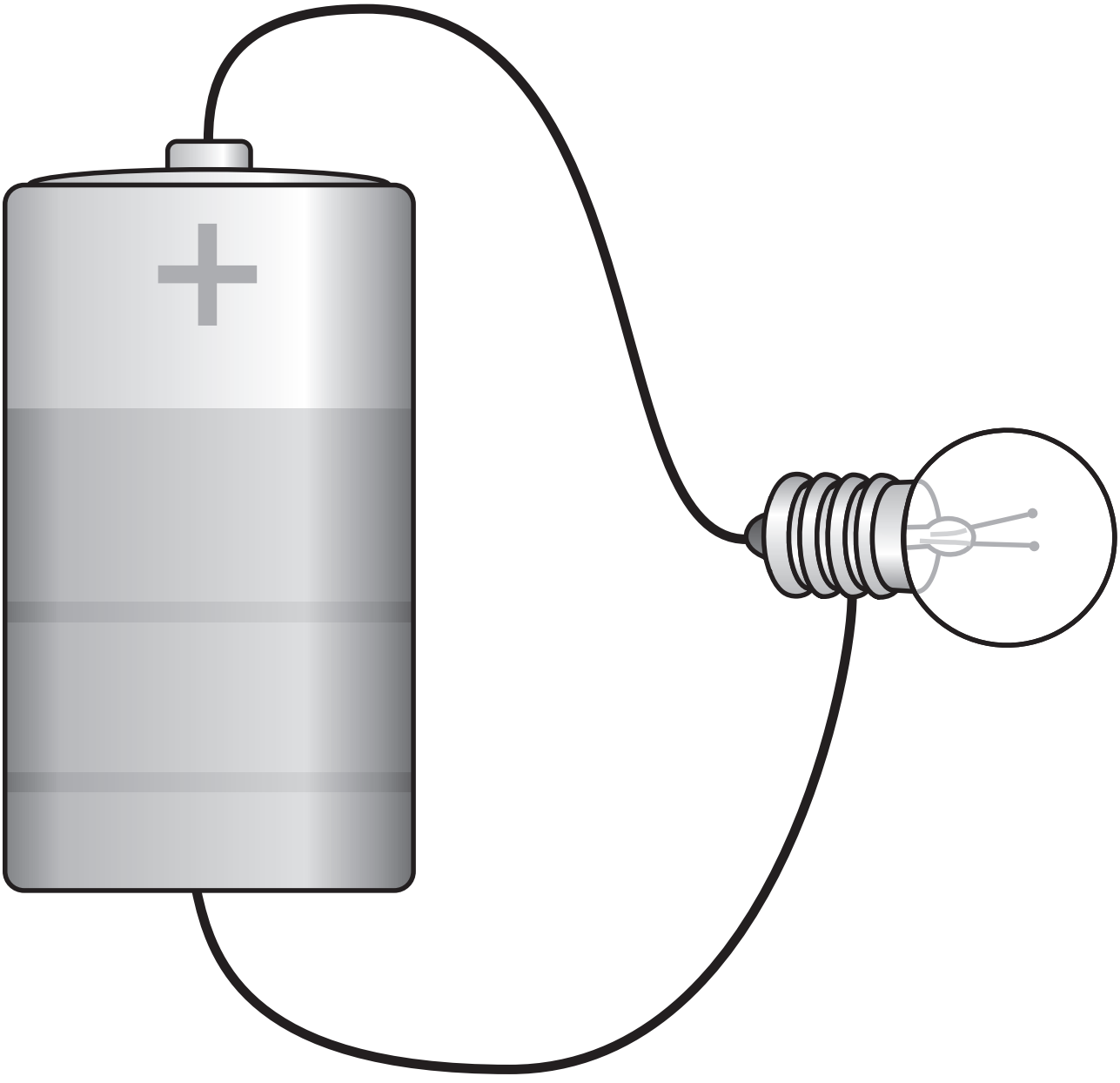
Is Your Home Safe?

You have been studying how to avoid electrical hazards by using electricity safely. With a parent or another adult, use the checklist below to survey your own home. If you find any hazards, circle, "needs fixing" and then ask an adult to have them fixed.

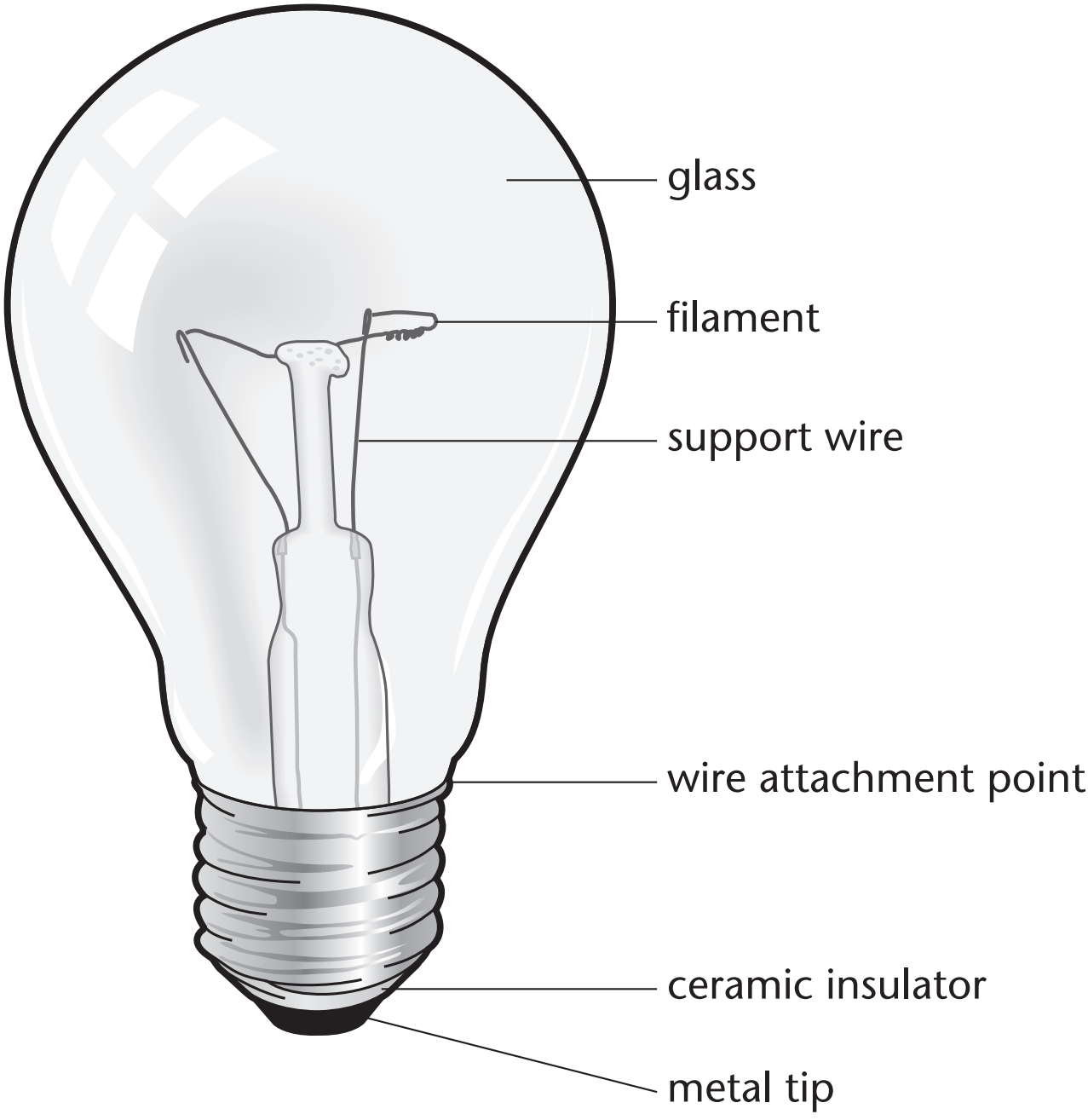
Electrical outlets are not overloaded with lots of plugs.	True	or	Needs Fixing
Electric cords are in good condition.	True	or	Needs Fixing
Electric cords do not run under rugs or furniture legs or near hot appliances.	True	or	Needs Fixing
Electric appliances are used away from water.	True	or	Needs Fixing
People carry appliances by the handle, not the cord.	True	or	Needs Fixing
A multipurpose fire extinguisher is kept in the house.	True	or	Needs Fixing
All danger and warning signs are read and carefully followed.	True	or	Needs Fixing
Electric appliances that can get hot—such as heaters, toasters, and light bulbs—are kept away from things that can burn.	True	or	Needs Fixing
Safety caps are inserted in outlets when small children are around.	True	or	Needs Fixing
Small appliances are turned off and/or unplugged when people leave home.	True	or	Needs Fixing
All extension cords, lights, and appliances used outdoors are labeled for outdoor use.	True	or	Needs Fixing

This activity is optional.

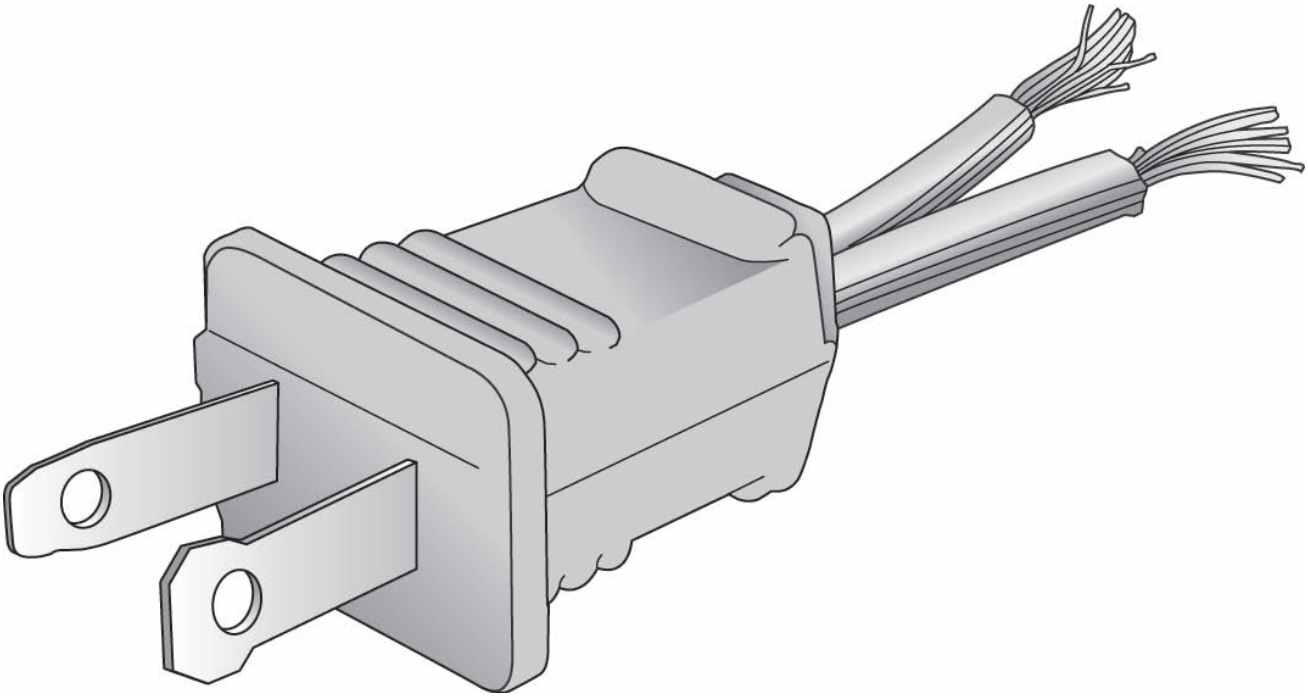
Bulb and Battery Circuit



Inside a Light Bulb



Inside an Extension Cord



Identifying Conductors and Insulators

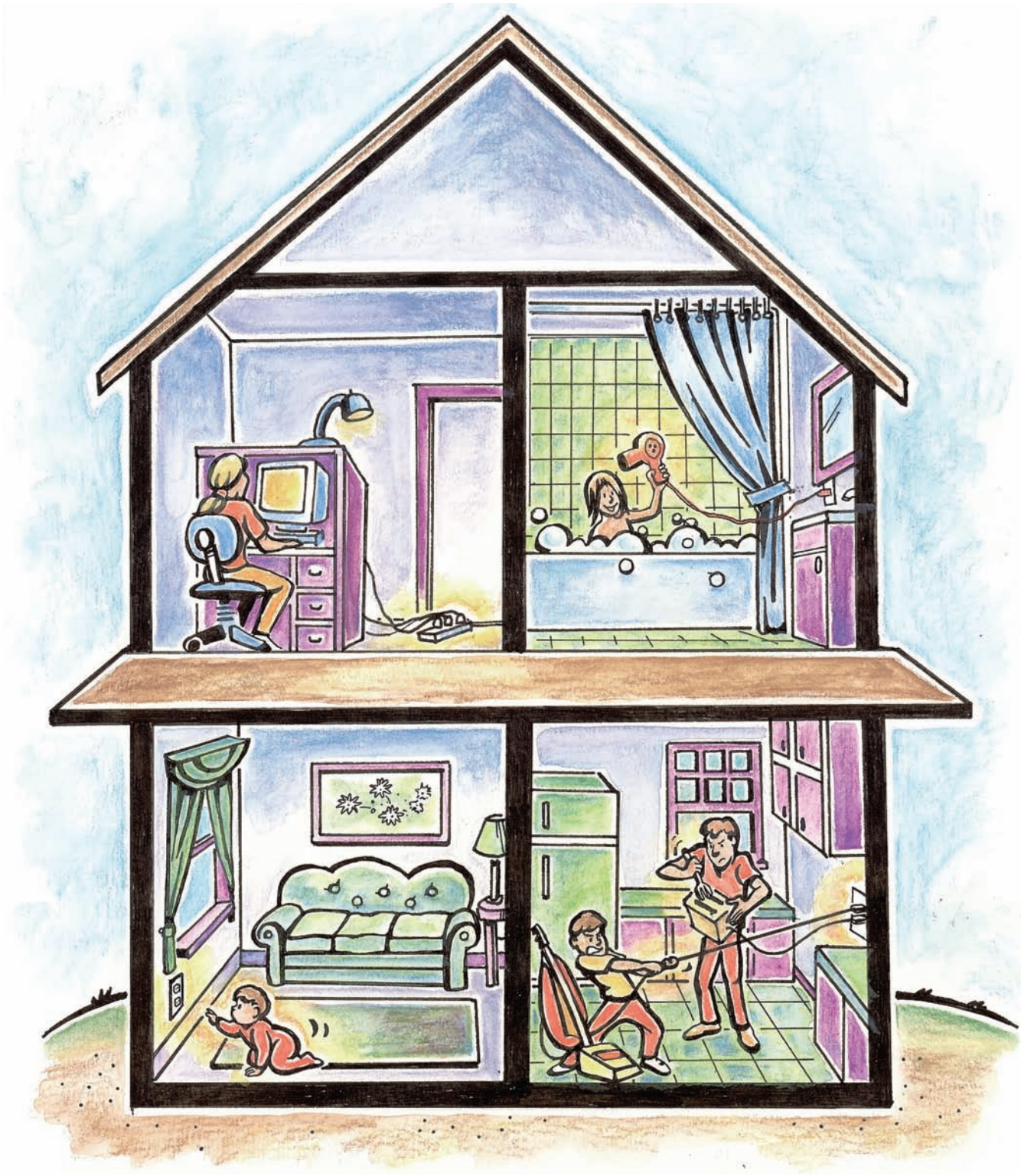
Predictions and Results:

Object To be Tested	Prediction (circle one)	Testing Result (circle one)	Material
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	
	Conductor Insulator	Conductor Insulator	

Conclusion:

Explain your results. How are the materials that worked to complete the circuit alike?

Find the Electrical Hazards—Indoor



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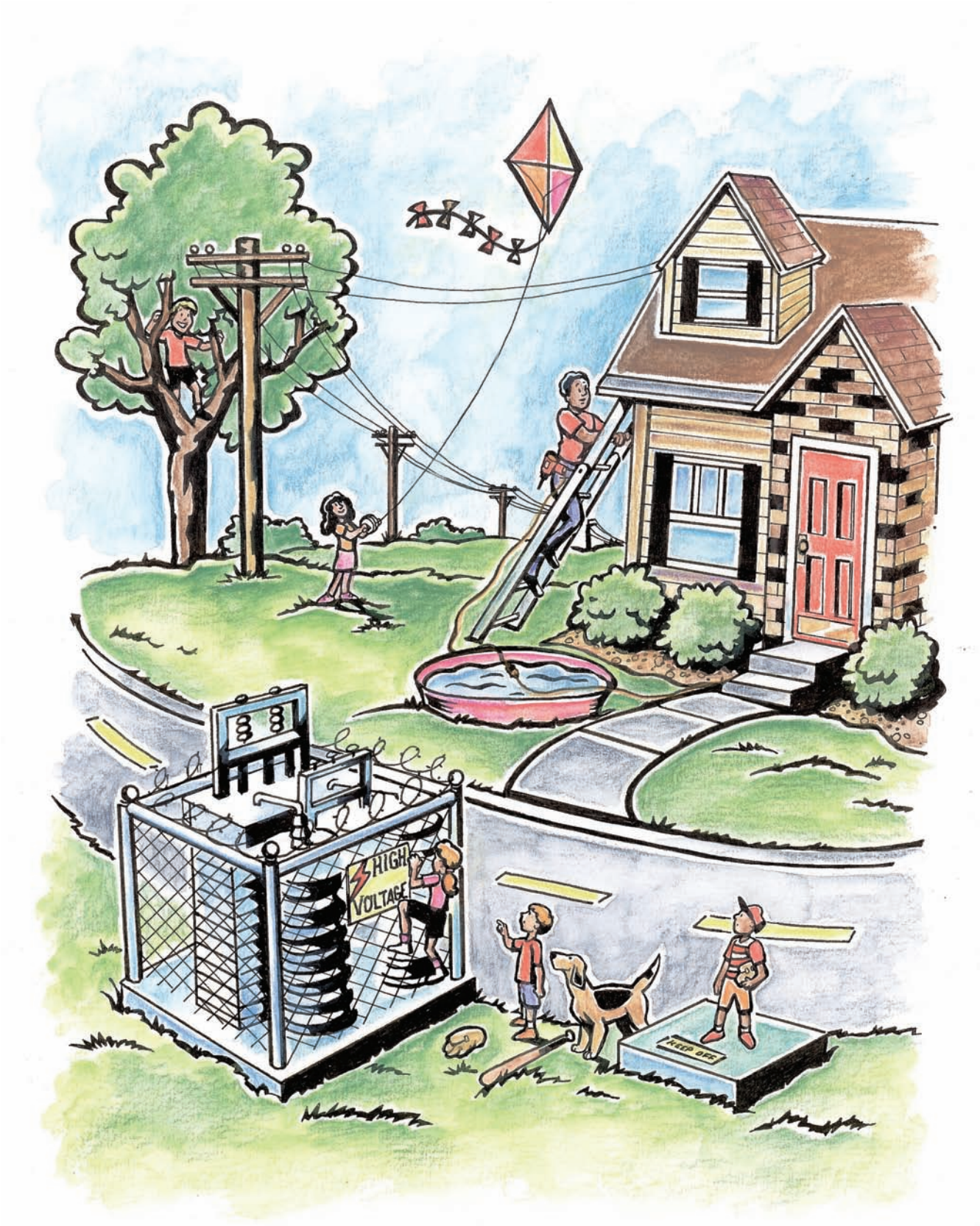
Find the Electrical Hazards—Outdoor



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