Electrical Safety: Be Safe to a Fault!

Overview

Task Context
Students need to understand the importance of electrical safety and to identify potential electrical hazards.

Description
Students will discuss ways of practising electrical safety. They will have an opportunity to apply safety practices at home by using a Home Electrical Safety Checklist.

Links to Prior Knowledge
Prior to beginning, students in Grades 7 and 8 will need to be able to:
1. work in groups and independently;
2. follow directions;
3. communicate messages;
4. listen to discussions;
5. apply the rules of working with others;
6. contribute ideas appropriate to the topic and listen to the ideas of others;

Expectations

Grade 7	Grade 8
7e47 • use instructions and explanations to plan and organize work; 7e48 • ask questions and discuss different aspects of ideas in order to clarify their thinking; 7e64 • listen and respond constructively to alternative ideas or viewpoints; 7e65 • express ideas and opinions confidently but without trying to dominate discussion;	8e46 • provide clear answers to questions and well-constructed explanations or instructions in classroom work; 8e47 • listen attentively to organize and classify information and to clarify thinking; 8e62 • contribute collaboratively in group situations by asking questions and building on the ideas of others;

Groupings
Students Working As Whole Class
Students Work in Small Groups
Students Working Individually

Teaching / Learning Strategies

Brainstorming
Discussion
Questioning Process

Notes to Teacher

Chart paper and markers will be needed for group work.

Teaching / Learning

1. Teachers and students discuss the importance of electrical safety.

    Sample discussion questions:

    - What kinds of things in our classroom/home run on electricity?
    - Why can electricity be dangerous? (e.g., It can shock you or cause fire if it is used improperly).
    - What is electricity? (Electricity gives us light, heat and power. Electricity is carried through wire into our homes, schools, office buildings, and amusement parks, movie theaters – a whole variety of places – where power is needed for appliances, machines and lighting).
    - Why is electricity dangerous around water? (When something electric is dropped in water, it can charge the water with electricity. DO NOT reach in to get it or you could be shocked very badly. Always ask an adult to help you unplug an appliance before retrieving it from water. Don't use that appliance until it has been looked at by a qualified service person.)
    - When purchasing a new appliance, why is it important to look for a CSA label? (All appliances should bear a label from a testing and certification organization such as CSA (Canadian Standards Association). This insures that the device is constructed in accordance with nationally accepted safety standards.)
    - Why shouldn't you run a cord under a rug? (It is dangerous because walking over the carpet on top of the cord can damage the insulation covering the electrical wires in the cord. Also, the wires could heat up and start a fire.)
    - What does G.F.C.I. stand for and what does it do? (G.F.C.I. stands for Ground Fault Circuit Interrupter. It detects any stray or leaking electrical current that could cause a dangerous shock, and shuts power off rapidly.)
    - Where should G.F.C.I.s be installed? They should be installed in kitchens and bathrooms where water and electricity are near each other. Electricity around water is dangerous!)
    - Why is it dangerous to nail or staple extension cords to the floor or the wall? (If a cord is punctured or wears through, it could shock you or cause a fire.)

- What does a circuit breaker or fuse do if too many plugs overload an outlet? (Too much power can overheat and outlet and cause a fire. The circuit breaker or fuse keeps too much electricity from flowing to the outlet. Before you turn the power back on, unplug some cords.)

2. Teachers divide the class into groups of 5.
3. Each group selects a recorder to record their ideas on chart paper.
4. Each group selects a reporter to share their ideas with the class.
5. Groups of students brainstorm electrical safety tips.

Sample safety tips:

- Replace broken or frayed cords.
- Do not use electrical appliances in or near water.
- D not plug too many appliances into the same outlet.
- Replace cords that feel warm or hot.
- Appliances that give off smoke or a burning odour should be repaired by a technician.
- Unplug appliances when they are not in use.
- Keep appliances clean and free from dust and grease.
- Electrical appliances should be repaired only by certified service personnel.
- Electrical problems within the home should be repaired by an electrician.
- Use extension cords of the proper weight and size.
- Cords intended for indoor use should never be used outdoors.
- Children should have adult supervision when using an appliance.
- When a fuse blows, locate the source of the problem and correct it before replacing the fuse.

6. Groups share their ideas and charts are posted around the room.
7. Teachers and students use these ideas to develop a Home Electrical Safety Checklist which will be photocopied and sent home.
8. Using the Home Electrical Safety Checklist, students look for potential safety hazards in their homes.

Home Connection

Home Electrical Safety Checklist

Resources

Sample Home Electrical Safety Checklist

Sample Home Electrical Safety Checklist

How Safe is Your Home?

Do this home inspection with an adult.

	Yes	No
1. Safety caps are inserted in outlets if small children are in the home.		
2. Extension cords do not run under rugs or furniture legs.		
3. No electrical appliances are used near water.		
4. Small appliances are turned off and/or unplugged when no one is at home.		
5. All extension cords used outside are labeled for outdoor use.		
6. Electrical outlets are not overloaded with lots of plugs.		
7. No electrical cords are frayed or worn.		
8. All appliances have a label from a recognized testing and certification organization should as CSA (Canadian Standards Association).		
9. All appliances are operated according to the manufacturer's instructions.		
10. People unplug appliances by pulling on the plug, not on the cord.		