



# living safely w

Classroom and homework activities to support the Healthy Communities and Environments strand of the Health & Physical Education Curriculum brought to you by:



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## Learning Intentions: Years 6 - 10

- Knowing that electricity has many benefits for us all.
- Understanding that although electricity may be easy to use and convenient, it must be treated with respect otherwise it can harm us.
- Understanding how electricity works.
- Knowing that simple strategies can be put in place to reduce electrical accidents
- Being able to devise ways of getting electrical safety messages out to other school students and to our families at home.



## It's Just So Convenient

- Start with a homework assignment where all students keep a note pad handy and write down every time they and/or any member of their household uses electricity during a day or night at home, **eg**
  - what was the appliance that was used?
  - what was it being used for?
  - how long was it used for and by whom?
- Collate all the class data into a wall chart or database and itemise each electrical appliance used and how often.
- Discuss:
  - what appliances were used the most?
  - what room/s was electricity used most in?
  - what (human) activity required the most electrical use?
- Run a ten minute group brainstorming session where students have to suggest how a particular activity which commonly uses electricity, would be carried out if we didn't have it, **eg**
  - how would we cook or make a cup of tea?
  - how would we heat our houses?
- Debate the pros and cons: 'Life as we know it today would be impossible without electricity.'

## How Does Electricity Work?



- What do the students know already about how electricity works? Can they trace it backwards from turning on a light switch to where it is made (generated)?
- Using a battery, wires and a small torch bulb, challenge/help students set up a simple electrical circuit. Help students see that when they turn on a light switch at home, they complete a circuit from the switch to the power station.
- Introduce the idea that electricity flows easily through wires and that anything electricity flows through is called a conductor.



## Electricity Can Be Dangerous

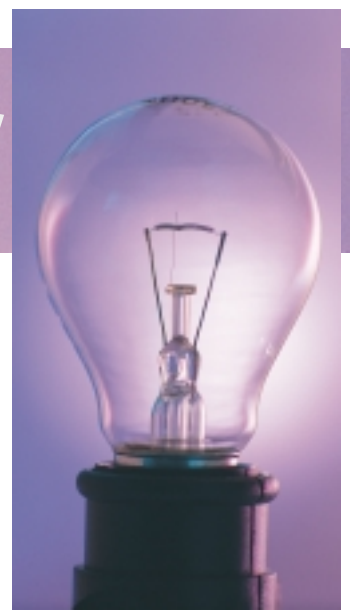
- Did the students know that water is a good conductor of electricity? Tell students that our bodies are mostly water. Do they know that if we touch an electric circuit, electricity will flow through our body to the ground and this can be very serious and can actually kill people.
- Have any students or their family members experienced an electric shock? Can they identify the cause? Share any experiences and consequences?
- Were any steps taken to ensure it didn't happen again?
- Develop the idea that although electricity is clean, and able to be used instantly, because it can't be seen or heard, there can be risks if not used safely.
- Help students identify the risks when electricity is not used safely, **eg** electric shock, burns, scorching, fires ...



## Time To Ask An Expert

- Students should be made aware of the electrical warning signs. Invite a local power company representative, electrical inspector or licensed electrician to talk to the class about how to know when there could be a problem with an appliance, plug or wiring.
- Problem signs will include:
  - tingling when touching an appliance or fitting
  - appliances feeling hotter than normal

# with electricity



- fuses frequently blowing or circuit breakers tripping
- dim or flickering lights
- unusual smells or sounds
- scorch marks on plugs or appliances
- damaged and frayed insulation on cables and cords
- switches showing exposed wiring
- broken power sockets
- a power outlet where a plug will not fit in firmly
- Find out what action should be taken in each case and who should take this action, **eg for appliance repairs**
  - a licensed electrical worker should make the repairs
  - people should ask for an Electrical Safety Certificate for repair work done on appliances.



## Importance of RCDs

- Visit the Energy Safety Service's website at: <http://www.ess.govt.nz>



- Click on Safety Information then select Electrical Safety.
- Download the Residual Current Devices - Switching on to Safety pdf, print out, photocopy and distribute to groups for research and discussion.
- Before setting the task of answering the RCD questions, ask students to list power tools and/or activities which are carried on outside of the home and use electricity, eg
  - electric motor mower
  - electric hedge clippers
  - power to caravans
  - power tools
- Can the students think of any dangers using power tools and appliances outside? Do any students know what an RCD is and do any of their families use one?
- Have groups read and discuss the pdf and be able to answer and explain the following facts
  - Explain what is meant by an RCD being the electrical equivalent to a seat belt.
  - Be able to explain how an RCD is able to greatly reduce the chance of serious injury.

- Be able to name the three different types of RCDs.
- Under what conditions would you use each of the three RCDs?
- What areas inside your house are required to have RCD protection?
- What is the best action you can take if you think there is an electrical fault in your house?
- How often should RCDs be tested?



## Letting Others Know

- Help students summarise the main messages from their electrical safety study. Brainstorm and list ways they can get these messages out to other classes in the school and to their families, **eg**
  - visual fridge reminders
  - letters to the local paper
  - checklists for families
  - colourful safety message poster series
  - plan and run a school 'electrical safety day' for students and parents

## Free Resources for Further Studies

The Energy Safety Service has the following publications available free to schools:

- A Guide to Living Safely with Electricity (booklet & pdf)
- If it Can Heat You It Can Hurt You (booklet, poster and pdf)
- Residual Current Devices - Switching on to Safety (booklet & pdf)

These can be downloaded in pdf format from:

[www.ess.govt.nz](http://www.ess.govt.nz) > Safety Information > Electrical Safety

**or** email: [info@ess.govt.nz](mailto:info@ess.govt.nz) and request a school copy

**or** click on the web Resource Order Form for mailing

**or** Freefax 0508 723 336



What are the important rules for using multi-boxes?



Each year what do we always do before the 'electric blanket season'?



Why should you never leave a young child unsupervised in a room when a heater is on?

Why should we always make sure our heater is dust and debris free?