

Lesson 5

Teacher Notes – Electrical Power Equipment

Outcomes Written In line With The New South Wales Board of Studies

Personal Development, Health and Physical Education Syllabus

Stage 3 Outcome SLS 3.13

- Describes safe practices that are appropriate to a range of situations and environments.

Science & Technology Syllabus

Stage 3 Outcome PP S3.4

- Identifies and applies processes involved in manipulating, using and changing the form of energy.

English Syllabus

Stage 3 Outcome TS 3.2

- Interacts productively and with autonomy in pairs and groups of various sizes and composition, uses effective oral presentation skills and strategies, and listens attentively.

Lesson Objective: Students will be able to identify various electrical equipment and safety signs and be aware of the importance and dangers associated with each.

Background Information

You will need to photocopy the Group Activity and cut it into 6 cards.

- Resources:**
- Picture 5 – Substation fence.
 - Worksheet – Lesson 5 Electrical Power Equipment.
 - Group Activity Sheet.

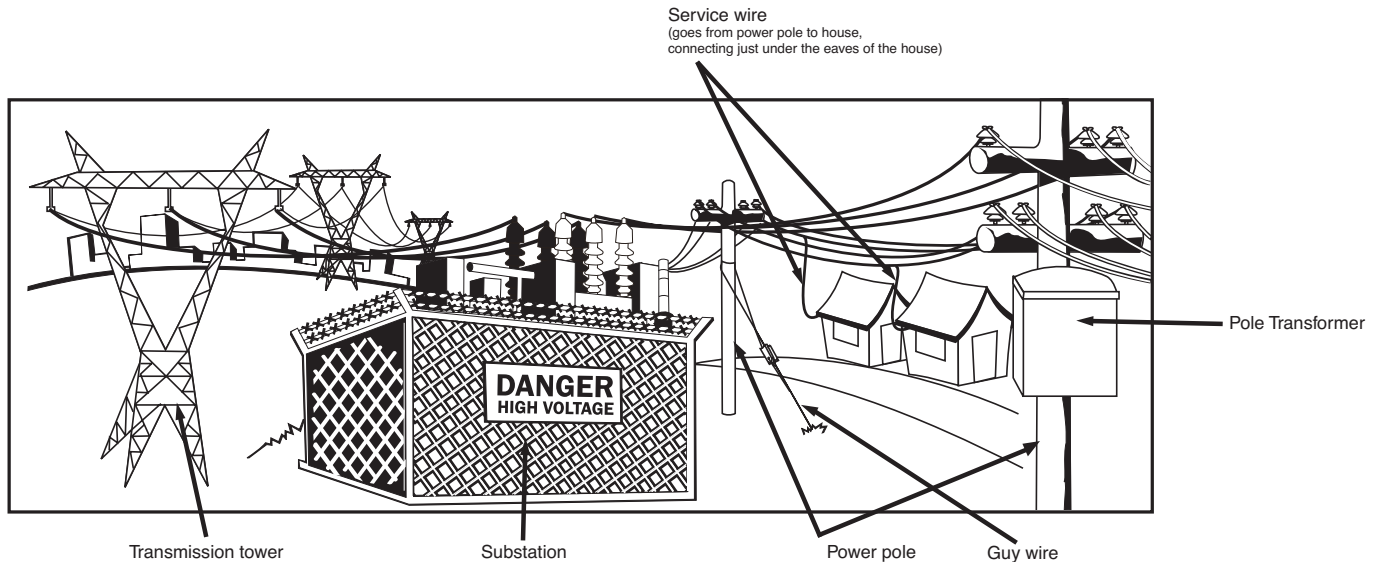
Lesson Plan Outline

1. Discuss Picture 5 – Substation fence: Explain that some substations are fenced in yards and some are inside buildings or housings. Cover the dangers of entering a substation. Explain the area inside a substation contains High Voltage electricity. Just being close to this equipment can kill you. The High Voltage Electricity can jump through the air and electrocute you. People who go into substations to do work are trained so that they know how far they need to be from each piece of electrical equipment. If they need to come closer, they must turn the equipment off. They wear special clothing to stop burns and electrocution. The fences around substations are there to protect you and usually have barbed wire and danger signs.
2. Split the class into groups. Hand out one card to each group and ask them to create a presentation. The presentation must include the name of the power equipment that they have been allocated, an explanation of the description of it and the safety message. Instruct students to use different forms of presentation e.g. role-play, poetry, song and dance.

Lesson 5

Teacher Notes – Electrical Power Equipment

3. Hand out worksheet. Ask students to complete the worksheet.



4. Discuss the importance of signs in the community. Once students have been made familiar with electrical power equipment they need to be able to identify, explain and understand the importance of doing what the warning signs say.
5. Ask students to give examples of important signs that if not obeyed could result in putting themselves or someone else in a dangerous and unsafe situation. Students should refer to worksheet – Lesson 5 Electrical Safety Signs when discussing the importance of safety signage.
6. Complete the second worksheet which asks students to create a safety song, rap or jingle about electrical safety signs.
Read example:
Danger, danger signs I see!
Keep that electricity away from me
If I go near I could be dead!
I can read, I know what the sign said
Danger, danger signs I see!
I stay away and am as safe as can be.
Share songs or jingles.
7. Discuss safety message at bottom of worksheet “Remember stay away from electricity substations”.

Lesson 5

Teacher Notes – Electrical Power Equipment

Group Activity Sheet for Lesson 5 Electrical Power Equipment

Photocopy this page and cut out the cards.

Name of Electrical Equipment

Transmission Tower

Description

A tall tower like structure that carries electricity from a power station.

Safety Message

Do not climb the towers.

Name of Electrical Equipment

Substation

Description

A place near your house where large amounts of electricity are reduced in voltage on their way to your house. They have fences around them or are in fibreglass housings or buildings.

Safety Message

Do not climb over or crawl under the fences or gates. You do not have to touch metal to be electrocuted. High voltage electricity can jump.

Name of Electrical Equipment

Guy Wires

Description

Help to keep poles standing. If a power line falls on them they can give you a shock.

Safety Message

Do not climb or hang anything on the wires.

Name of Electrical Equipment

Pole Transformers

Description

They are found on poles and reduce electricity to the right level for your house. People working on transformers turn them off and have special clothes and equipment to protect them.

Safety Message

You do not have special clothes and equipment, so stay away from pole transformers.

Name of Electrical Equipment

Electricity Pole

Description

These are found in most streets and carry electricity to houses or wherever it is needed.

Safety Message

Keep kites and toy planes away. Do not climb the poles.

Name of Electrical Equipment

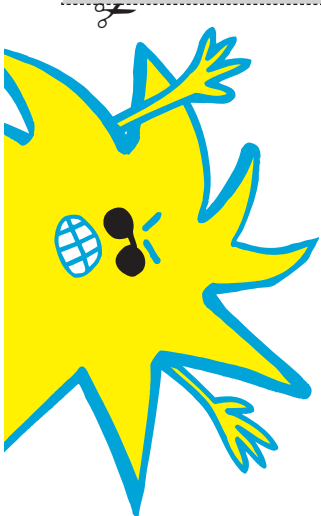
Service Wires

Description

They go from a pole to your house. They also go under the ground. They carry electrical power that can hurt you.

Safety Message

Never shoot or throw anything at the wires, insulators or transformers.



Lesson 5 – Electrical Power Equipment

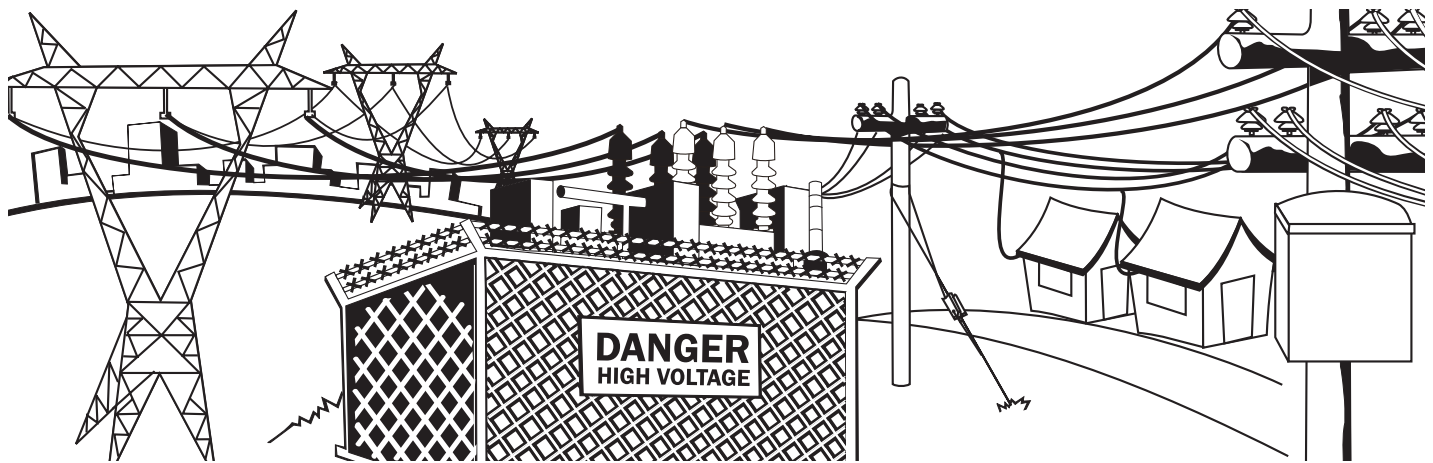
Name : _____ Class : _____ Date : _____

Electricity is made far away and then transported to you. After your discussion of Electrical Power Equipment look at the picture below and complete the following information.

1. Colour and label each Electrical Power Equipment as shown below.

Transmission Tower (Green)
Pole Transformers (Red)
Service Wires (Orange)

Substation (Blue)
Guy Wires (Yellow)
Power Pole (Purple)



2. Colour code the description of each to match the Electrical Equipment.

<p>A tall tower like structure that carries electricity from a power station.</p>	<p>Places near your house where large amounts of electricity are reduced in voltage on their way to your house. They have fences around them or are in fibreglass housings or buildings.</p>	<p>Carry electricity to houses or wherever it is needed. You see these in the streets.</p>	<p>Help to keep poles standing. If a power line falls on them they can give you a shock.</p>	<p>These are found in most streets and go from a pole to your house. They carry electrical power that can hurt you if you touch or come near them.</p>	<p>They are found on poles and reduce electricity to the right level for your house.</p>
---	--	--	--	--	--

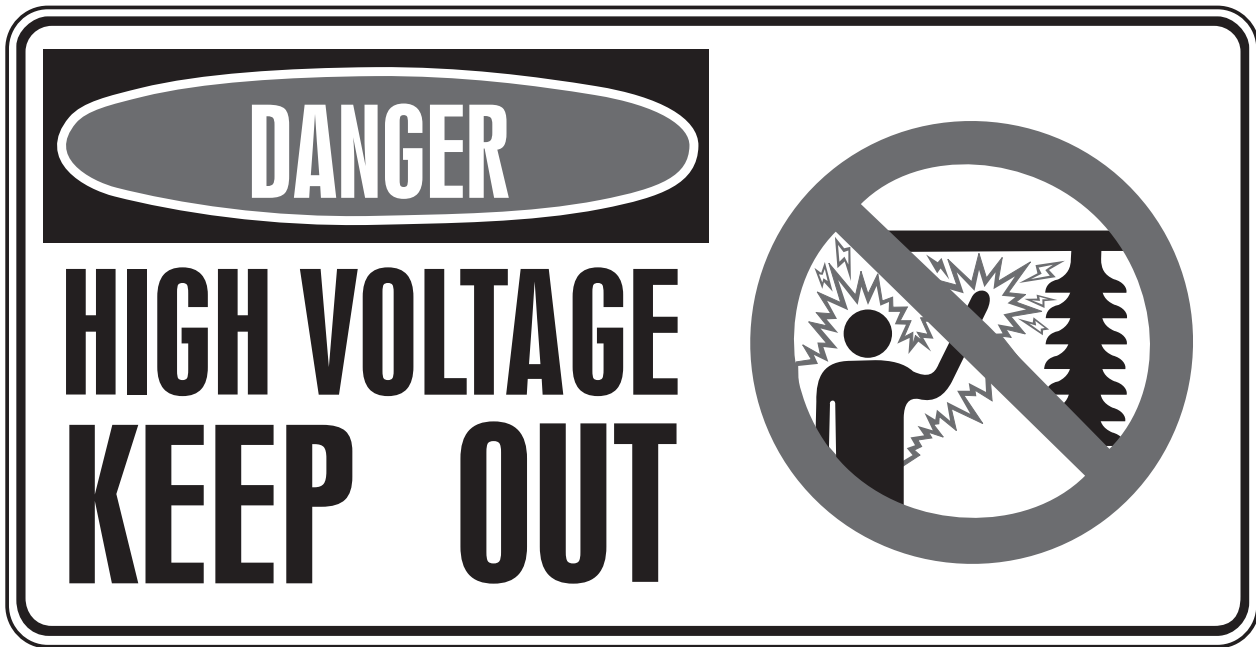
3. Colour code the safety message to match the Electrical Equipment.

<p>People working on distribution wires have special clothes and equipment to protect them. You do not!</p>	<p>Do not climb or hang anything on the wires, near the wires or try to touch them with anything.</p>	<p>Do not climb the towers! They have enough electricity to kill you.</p>	<p>Keep kites and toy planes away. Do not climb the poles.</p>	<p>Never shoot or throw anything at the wires, insulators or transformers!</p>	<p>Do not climb over or crawl under the fences or gates. You do not have to touch metal to be electrocuted!</p>
---	---	---	--	--	---

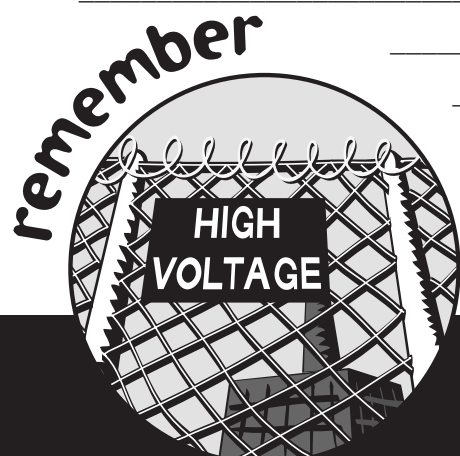
Students will be able to identify various electrical equipment and be aware of the importance and dangers associated with each.

Name : _____ Class : _____ Date : _____

Look at the following electrical safety sign.



You work for a very important advertising company. Your task is to design a radio advertisement in the form of a song or jingle about electrical safety signs. Your message should include why the sign is so important and why you should obey the message on the sign.



...stay away from electricity substations!

Students will be able to identify a variety of safety signs and be aware of the importance and dangers associated with each.