



# *STATIC ELECTRICITY ELECTROMAGNETISM & ELECTRICITY*

STUDENT WORKBOOK

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Student's Name

Presented by:

**ONTARIO****POWER**  
GENERATION

## ***ACKNOWLEDGEMENTS***

A special note of appreciation is extended to Linda St. Isaac Jogues Catholic School, Durham Catholic District School Board, for her assistance and insight. Her ideas and suggestions gave direction to the organization of the many components required to put this workshop together.

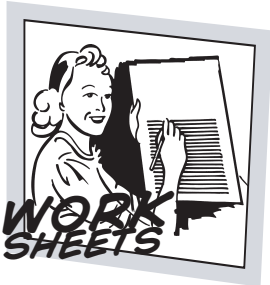
Thank you also to Ms. Rehill's grade three students at St. Isaac Jogues for allowing us to pilot this project with them. Their energy, enthusiasm and input helped fine-tune this workshop.

Kathleen McGill – author

Each activity has clear, concise directions. Any cautionary information is stated. While every precaution has been taken to ensure fun and safe experiments nothing substitutes for supervision and common sense. Ontario Power Generation assumes no responsibility for the misuse or mishandling of materials provided in this workshop.

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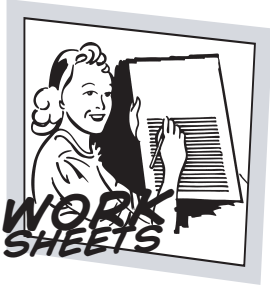
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## THEN & NOW

Complete the following by comparing pioneer life to life today. Give examples of how the pioneers cooked, cleaned, communicated and played and how you do all these things today.

	PIONEERS	TODAY
COOK		
CLEAN		
COMMUNICATE		
TOYS		



## SHAKY HAND WORKSHEET

Electricity only flows through complete circuits. Give examples from around your house when not having a complete circuit is better. (HINT – think of light switches):

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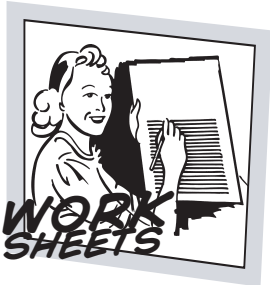
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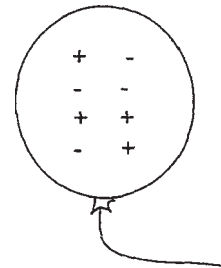
## STATIC ELECTRICITY INFORMATION SHEET

### Did you know?

Most objects have an equal amount of positive (+) and negative (-) electrical charges. If one object has an extra (-) charge it will stick to the (+) charge of another object. This is called static electricity. Have you ever rubbed a balloon on your sweater and then stuck the balloon to the wall? When the wool of your sweater is rubbed against the balloon, friction causes negative charges to jump onto the balloon. The extra negative charges on the balloon do not move. They are static or still. The extra negative charges are attracted to the positive charges on the wall. This attraction makes the balloon stick to the wall.

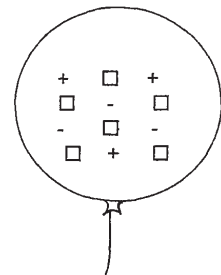
### For Example:

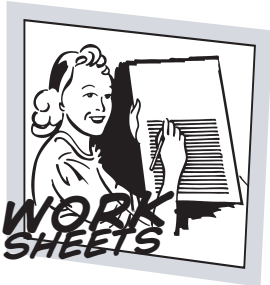
- \_\_\_\_\_ How many (+) charges are on the balloon?
- \_\_\_\_\_ How many (-) charges are on the balloon?
- \_\_\_\_\_ Do the (+) charges equal the (-) charges?
- \_\_\_\_\_ Will the balloon stick to the wall?



### For Example:

- \_\_\_\_\_ Put a (-) charge into each empty box on the balloon.
- \_\_\_\_\_ How many (+) charges are on the balloon?
- \_\_\_\_\_ How many (-) charges are on the balloon?
- \_\_\_\_\_ Do the (+) charges equal the (-) charges?
- \_\_\_\_\_ Will the balloon stick to the wall?





## ***ELECTRIC TEST WORKSHEET***

CONDUCTORS	INSULATORS

**Current runs through some materials easily. Why? Because their electrons are loosely bound. They travel easily from atom to atom. Some good conductors are: metals, acids and water.**

**In some other materials the electrons are tightly bound. It's hard for them to run. Good blockers make insulators. Good insulators are: plastic, rubber, wood, glass and air.**

Now that you know about conductors and insulators, why do you think the electrical wires in your home are all covered with plastic covering?



## ***FUN WITH ELECTRICITY WORDSEARCH***

I	A	C	F	X	J	L	N	R	V	E	F	L	U	O	R	E	S	C	E	N	T	B	D	S	T
N	Z	Y	M	Q	Z	P	M	A	G	N	E	T	T	A	H	K	U	A	O	V	B	W	F	R	C
S	P	P	C	X	Y	A	U	I	M	J	V	E	C	F	I	L	A	M	E	N	T	S	F	A	O
U	T	H	D	L	E	C	I	T	R	S	M	S	H	L	D	E	B	A	L	B	E	Z	Q	T	M
L	C	E	Y	U	R	R	N	D	Z	C	T	U	R	B	I	N	E	Z	N	C	G	L	N	I	P
A	P	A	N	D	L	A	A	C	E	D	C	O	E	E	P	A	R	B	N	I	R	E	O	N	U
T	I	V	A	N	R	S	R	I	M	N	G	Q	U	I	A	C	K	A	L	I	C	Q	R	O	T
O	U	Y	M	N	D	O	U	F	R	L	A	M	P	T	Q	M	I	W	E	S	N	S	T	R	E
R	E	W	O	S	Z	V	E	N	Q	H	A	B	O	I	R	L	E	D	E	Z	Q	T	C	H	R
C	E	A	E	R	A	M	I	L	C	S	X	M	L	L	P	O	Y	D	S	E	F	A	F	I	E
N	L	T	C	M	Y	O	P	Z	E	R	I	A	T	P	I	O	N	N	S	R	E	T	Q	L	U
E	E	E	C	A	B	L	E	S	L	C	O	R	A	M	C	A	M	A	T	I	S	I	E	I	Z
X	C	R	Z	E	Q	D	G	K	P	Z	T	N	D	U	C	S	F	J	V	I	E	C	Q	G	I
P	T	R	I	T	N	C	I	O	P	L	R	R	E	N	H	O	U	T	L	E	T	E	Y	H	R
L	R	N	V	S	A	R	W	I	O	U	A	B	I	Y	X	J	L	N	R	V	B	L	D	T	T
A	O	D	V	I	J	E	G	R	C	O	N	M	U	C	U	R	R	E	N	T	P	E	S	N	I
C	S	A	T	I	R	J	N	T	E	C	S	H	N	L	I	Q	U	E	S	I	M	C	P	I	C
U	C	T	H	D	L	E	C	I	T	S	F	M	S	H	L	T	D	C	B	Z	L	T	B	N	O
S	O	J	Z	Q	P	Y	L	O	N	S	O	Y	A	C	U	V	Y	J	F	A	O	R	M	G	N
A	P	P	N	A	D	L	A	A	C	E	R	D	C	I	O	E	Z	P	A	R	B	I	F	I	D
R	E	R	D	E	D	F	L	N	G	Q	M	U	X	R	A	H	K	S	U	A	A	C	B	L	U
Q	Z	G	E	N	E	R	A	T	O	R	E	E	A	C	L	T	R	H	J	N	G	I	F	X	C
C	U	K	C	I	T	P	O	S	S	U	R	G	R	U	G	Y	S	O	P	U	X	T	J	S	T
U	C	T	Z	Q	R	M	T	E	L	E	V	I	S	I	O	N	A	C	L	M	O	Y	L	W	O
D	O	I	S	J	O	U	N	R	W	O	S	S	X	T	Y	Z	B	K	Q	V	P	K	U	R	R
H	I	G	H	V	O	L	T	A	G	E	A	C	F	X	J	L	N	R	V	E	R	A	D	I	O

**Search For The Following Words:**

- |              |                  |              |                    |
|--------------|------------------|--------------|--------------------|
| appliances   | electroscope     | incandescent | radio              |
| atomic power | filament         | insulator    | shock              |
| cables       | fluorescent      | lamp         | static electricity |
| circuit      | generator        | lightning    | steam              |
| computer     | heavy water      | magnet       | television         |
| conductor    | high voltage     | outlet       | transformer        |
| current      | hydroelectricity | pylons       | turbine            |
| dynamo       |                  |              | uranium            |

***FOLLOW THE PATH OF ELECTRICITY FROM  
THE POWER PLANT TO YOUR HOUSE...***

