**Statement of Inquiry:**

Technological innovations often alter the relationships people have with their local and global environments.

**Key concept:** relationships

**Related concepts:** development, environment

**Global context:** Globalization and Sustainability (consumption, conservation, natural resources and public goods)

**Debatable Question:**

Hydroelectricity and the Province of Quebec—What price have we paid??

**Electricity**

**Electricity** is the presence and flow of **electric** charge. Its best-known form is the flow of electrons through conductors such as copper wires.

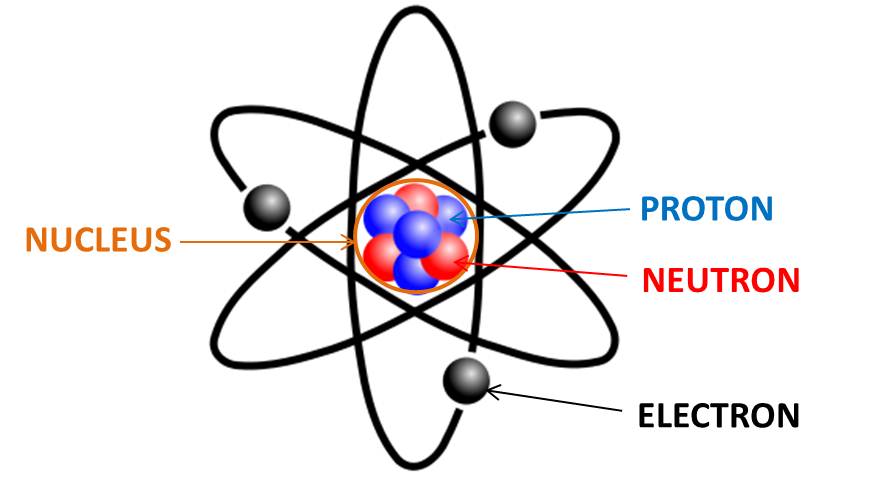
**Electricity** is a form of energy that comes in positive and negative forms, that occur naturally (as in lightning), or is produced (as in generator).

[Electricity - Simple English Wikipedia, the free encyclopedia](https://simple.wikipedia.org/wiki/Electricity) <https://simple.wikipedia.org/wiki/Electricity>

**Things That We Use That Need Electricity**

|  |  |  |
| --- | --- | --- |
| **In the Morning** | **During the Day** | **At Night** |
|  |  |  |
|  |  |  |
|  |  |  |

**The Atom**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Particle** | **Symbol** | **Charge** | **Mass (amu)** | **Location** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Charge**

* Electrons are free to move under the influence of an outside force—either physical or electrical
* Electrons are held relatively held loosely in **conductors** such as

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ AND \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

­

* Electrons are held more tightly in **insulators** such as

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ etc

**Static Electricity** **Current Electricity**

* Too many electrons around the atoms of an object causes the object to have a **negative** charge—excess electrons.
* Too few electrons around the atoms of an object causes the object to have a **positive** charge—too few electrons.

**Freed electrons** are the stuff of which electricity is made!!!

**Voltage**

* The "pressure" that makes the electrons flow along a conductor (wire)

e.g. 9 Volt battery

e.g. 120 Volt power lines in your home

* Symbol is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Unit is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Measured using a Voltmeter \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = the "social reject"

**AKA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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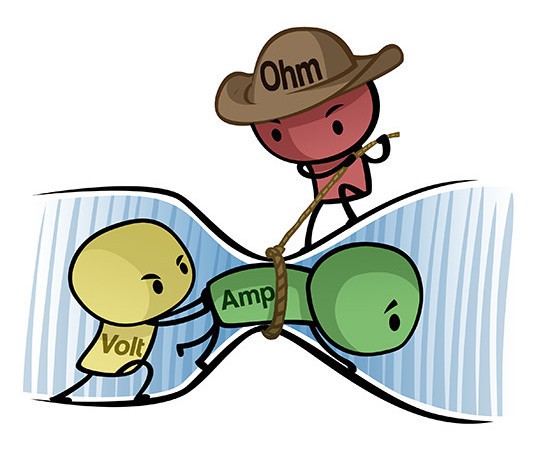
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**Current**

* The flow of electric charge
* The charge is carried by moving electrons along a wire
* Current is the flow of electrons along the surface of a wire.
* Like a liquid that flows through a pipe
* If there is a lot of water in the tank—there is more pressure for the water to be pushed through the pipe
* Symbol is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Unit is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Measured using an Ammeter ­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ton Amie!

**Resistance**

* A measure of how hard it is for electric current to move along a conductive material.
* Symbol is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Unit is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Measured using an Ohmmeter which we do not have!
* Or calculated using Voltage and Current



No conductor is a perfect conductor and no insulator is a perfect insulator!

All materials put up some resistance to electrons flowing!

**Activity:** **Lighting Up a Light Bulb**

**Equipment**

* wire--lead
* light bulb
* D battery

**How did you light up the light bulb?**

**Sketch**