Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Lesson 9: Measuring Electrical Energy**

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**Electrical energy use is measured in two main ways**:

**Electrical Power:**

* The rate at which electrical energy is used by a load
* Measured in watts (W) or kilowatts (kW)
* 1 kW = 1000 W
* Appliances are given power ratings

E.g. an appliance with a power rating of 100 W will consume energy 10 times faster than an appliance with a 1 kW rating

**Kilowatt-Hours:**

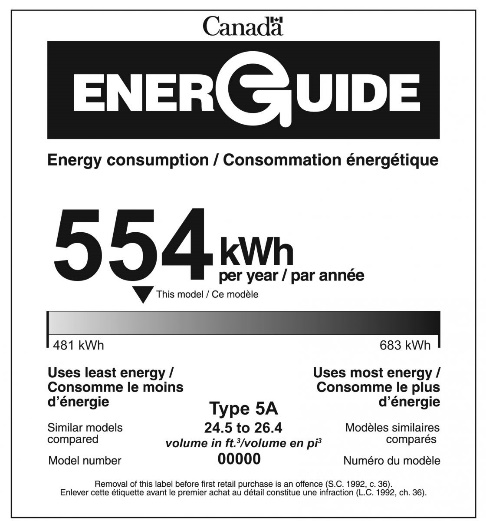
* The electrical energy used by an appliance over time
* Measured in kilowatt-hours (kWh) which combines units of power and time
* E.g. if you use an appliance rated 1000 W for one hour, you will have used 1 kWh of electrical energy

**Reducing your energy usage:**

**Smart Meters:**

* Track your energy usage through the day
* Information sent to utility company

**EnerGuide and ENERGY STAR**

* The Government of Canada requires new

appliances be labelled to show how much energy they use

in a typical year

How much energy the appliance uses in a year

**Phantom Loads:**

Range of efficiency for yearly use

How the appliance compares with others

* The electrical energy a device uses when it is turned off
* Many electrical devices go into stand-by mode rather than switching off
* Phantom loads account for about 900 kWh of electrical energy use each year in the average home
* Examples of devices that have phantom loads: remote controlled devices, computers, power bars, microwaves