**Unit 4: Design**

**Lesson 1: Energy and Power**

**File 4.1.2: Energy Consumption**

In this activity, you and a partner will estimate the amount of energy the following appliances use on a daily basis.

Listed at this site are ranges of energy use for a variety of appliances. From the values provided on the site, estimate the usage and complete the chart below. Energy usage is measured in watts. Example: a small aquarium might use 50 watts per day while a large aquarium might use 1210 or more watts/day.

Utility Rate per kWh for North Carolina: **$0.1091**

**Use the following links to find the common Wattage for the items below**

**Link 1:** <http://buildingsdatabook.eren.doe.gov/TableView.aspx?table=2.1.16>

**Link 2:** <http://hes-documentation.lbl.gov/calculation-methodology/calculation-of-energy-consumption/major-appliances/miscellaneous-equipment-energy-consumption/default-energy-consumption-of-mels>

**Link 3:** <http://www.energystar.gov/products/certifiedproducts?c=products.pr_find_es_products>

**Link 4:** <http://www.wholesalesolar.com/solar-information/how-to-save-energy/power-table>

**These are not the only links you can use, these are just some that will help you along the way.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Appliance | Estimated Number of Hours of use/day | Wattage | Energy Consumption  (Wattage × Hours Used Per Day) ÷ 1000 = Daily Kilowatt-hour (kWh) consumption) | Daily Cost  Daily energy consumption × utility rate per kWh = daily cost to run appliance |
| EX: Aquarium |  |  |  |  |
| Clock radio |  |  |  |  |
| Coffee maker |  |  |  |  |
| Clothes Dryer |  |  |  |  |
| Dishwasher |  |  |  |  |
| Dehumidifier |  |  |  |  |
| Electric blanket |  |  |  |  |
| Fan/ceiling |  |  |  |  |
| Fan/ window |  |  |  |  |
| Fan/ furnace |  |  |  |  |
| Fan/ whole house |  |  |  |  |
| Hair dryer |  |  |  |  |
| Clothes iron |  |  |  |  |
| Microwave oven |  |  |  |  |
| Personal computer |  |  |  |  |
| PC monitor |  |  |  |  |
| Laptop |  |  |  |  |
| Radio |  |  |  |  |
| Refrigerator |  |  |  |  |
| Television 19” |  |  |  |  |
| Television 27” |  |  |  |  |
| Television 36” |  |  |  |  |
| Television 53”-61” Proj |  |  |  |  |
| Television flat screen |  |  |  |  |
| Toaster |  |  |  |  |
| Toaster oven |  |  |  |  |
| VCR/DVD |  |  |  |  |
| Vacuum cleaner |  |  |  |  |
| Water heater |  |  |  |  |
| Water pump |  |  |  |  |
| Water bed |  |  |  |  |

**What is your most expensive product to run daily?**

**How much would it have cost to run this appliance in Hawaii? (Hawaii Utility Rate per kWh = $0.3734)**