NYSERDA Lab Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_

At each station, fill in the tables with information on each object and the wattage they consume.

Station A

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item Number | Description | Power Consumption (Watts) | Lumens | Lifetime | Cost per Bulb |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |

Station B

|  |  |  |
| --- | --- | --- |
| Item Number | Description | Power Consumption (Watts) |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |

Station C

|  |  |  |
| --- | --- | --- |
| Item Number | Description | Power Consumption (Watts) |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |

**Station A**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | Incandescent | Compact Fluorescent (CFL) | Light-Emitting Diode (LED) |
| 1 | Light Output (Lumens) | Info Sheet |  |  |  |
| 2 | Lifetime (hours) | Info Sheet |  |  |  |
| 3 | Cost/bulb ($) | Info Sheet |  |  |  |
| 4 | Power Consumption (Watts)  | measured in Lab |  |  |  |
| 5 | Power Consumption (kilowatts) | $$=\frac{watts\left(4\right)}{1000}$$ |  |  |  |
| 6 | Light Output Efficiency | $$=\frac{Lumans\left(1\right)}{Watts\left(4\right)}$$ |  |  |  |
| 7 | Most efficient bulb | 🗹 the most efficient type bulb |  |  |  |
| 8 | Number of bulbs used in a year (if used 2400 hr/year) | $$=\frac{2400 hr}{Lifetime\left(2\right)}$$ |  |  |  |
| 9 | Number of bulbs used in 10 years | $$=bulbs\left(8\right)×10 years$$ |  |  |  |
| 10 | Purchase cost of bulbs used in 10 years ($) | $$=bulbs\left(9\right)×cost\left(3\right)$$ |  |  |  |
| 11 | Least expensive for 10 years of use | 🗹 the least expensive type bulb based on (10) |  |  |  |
| 12 | Kilowatt-hours for 1 year (2400 hr) of use (kWh) | $$=kilowatt\left(5\right)×2400 hr$$ |  |  |  |
| 12 | Usage cost of bulb if electricity costs $0.12 per kWh ($) | $$=kWh\left(12\right)×\$0.12$$ |  |  |  |
| 13 | Usage cost to use bulb for 10 years ($) | $$=usage cost\left(12\right)×10 years$$ |  |  |  |
| 14 | Total cost (purchase and usage) | $$=purchase cost\left(10\right)+usage cost (13)$$ |  |  |  |
| 15 | Least expensive for 10 years of use | 🗹 the least expensive type bulb based on (14) |  |  |  |

**Station B**

1. How many kilowatts does a TV consume?
$$kilowatts=\frac{watts}{1000}$$
2. If Sam watches TV for 4 hours every day for 1 year how many hours of TV did he watch?
3. How many kilowatt-hours (kWh) of electricity does Sam’s TV consume in a year?
$$kWh=kilowatts×hours $$
4. How much does it cost to run Sam’s TV over a year if electricity costs $0.12 per kWh?

**Station C**

1. How many kilowatts does a microwave consume?
$$kilowatts=\frac{watts}{1000}$$
2. If Lily uses the microwave 10 minutes every day for 1 year how many hours does she use it?
3. How many kilowatt-hours (kWh) of electricity does Lily’s microwave consume in a year?
$$kWh=kilowatts×hours $$
4. How much does it cost to run Lily’s microwave over a year if electricity costs $0.12 per kWh?