

Name _____

CONSERVATION

BINGO

| | | | | |
|---|---|---|--|---|
| Leaves lights on when not in a room | Recycles cans at home | Uses scrap paper | Throws plastic bottles in the trash | Leaves computer on overnight |
| Drinks more than one single-use bottle of water a day | Takes long showers | Turns off lights when leaves a room | Stands in front of the open fridge deciding what to eat or drink | Has TV on at home for more than 2 hours per day |
| Uses rechargeable batteries | Turns off video game system when not using it | FREE SPACE | Uses disposable batteries | Leaves faucet on while brushing teeth |
| Brings lunch to school | Carpools to practice or events | Recycles paper at home | Takes short showers | Downloads music instead of buying CDs |
| Turns off the faucet while brushing teeth | Checks books out of the library | Throws away plastic shopping bags after one use | Rides the bus to school | Unplugs cell phone charger when done charging |



Conservation Bingo ANSWER KEY

C O N S E R V A T I O N

B I N G O

| | | | | |
|---|---|--|---|---|
| Leaves lights on when not in a room (wastes electricity) | Recycles cans at home (less waste in landfills) | Uses scrap paper (less waste) | Throws plastic bottles in the trash (increases waste in landfills - average bottle takes over 500 years to degrade) | Leaves computer on overnight (wastes electricity) |
| Drinks more than one single-use bottle of water a day (wastes plastic, use a refillable bottle instead) | Takes long showers (wastes water, take shorter showers) | Turns off lights when leaves a room (conserves electricity) | Stands in front of the open fridge deciding what to eat or drink (wastes electricity) | Has TV on at home for more than 2 hours per day (wastes electricity) |
| Uses rechargeable batteries (less waste in landfills) | Turns off video game system when not using it (conserves electricity) | FREE SPACE | Uses disposable batteries (increases waste in landfills) | Leaves faucet on while brushing teeth (wastes water) |
| Brings lunch to school (less waste in landfills from food packaging) | Carpools to practice or events (less gas used and fewer emissions) | Recycles paper at home (less waste in landfills) | Takes short showers (conserves water) | Downloads music instead of buying CDs (less waste in landfills; also costs less to get only songs you want instead of whole disk) |
| Turns off the faucet while brushing teeth (conserves water) | Checks books out of the library (less waste in landfills) | Throws away plastic shopping bags after one use (increases waste in landfills) | Rides bus to school (less gas used and fewer emissions than multiple cars, unless you usually walk) | Unplugs cell phone charger when done charging (conserves electricity) |

Name _____

Watt Can We Save

Directions: Calculate the cost of each appliance below. How much does it cost each month to run each appliance?

Cost per month =

Power used (kW) x Number of Appliances in House x Hours Used per Month x Cost per kWh

| Item | Average Wattage* | Average kW (Wattage per 1000) | x | # in House | x | Average Hours Used per Month | x | Cost per kWh (\$0.10) | = | Cost per Month | Cost per Year |
|---|------------------|-------------------------------|---|------------|---|------------------------------|---|-----------------------|---|----------------|---------------|
| Incandescent bulb - 60 W* | 60 | 0.06 | x | | x | | x | .10 | = | | |
| Compact fluorescent bulb - 60 W equivalent* | 18 | 0.018 | x | | x | | x | .10 | = | | |
| Coffee maker | 900 | 0.9 | x | | x | | x | .10 | = | | |
| Microwave | 1000 | 1.0 | x | | x | | x | .10 | = | | |
| Hair dryer | 1800 | 1.8 | x | | x | | x | .10 | = | | |
| Dishwasher | 1300 | 1.3 | x | | x | | x | .10 | = | | |
| Stove/Range (electric) | 12500 | 12.5 | x | | x | | x | .10 | = | | |
| Refrigerator/ Freezer | 500 | 0.5 | x | | x | | x | .10 | = | | |
| Clothes dryer (electric) | 5000 | 5.0 | x | | x | | x | .10 | = | | |
| Clothes washer | 500 | 0.5 | x | | x | | x | .10 | = | | |
| Computer, monitor, and printer | 200 | 0.2 | x | | x | | x | .10 | = | | |
| Television | 80 | 0.08 | x | | x | | x | .10 | = | | |

**Note: Assume the same number of incandescent bulbs and compact fluorescent bulbs in the house to compare the cost of each.*



Watt Can We Save ANSWER KEY

The answers provided assume the following daily usage:

- Bulbs – 6 hours
- Coffee maker – 1 hour
- Microwave – 2 minutes
- Hair dryer – 10 minutes
- Dishwasher – 90 minutes or 1.5 hours
- Stove/range – 45 minutes
- Refrigerator – 24 hours
- Clothes dryer – 1 hour (assumes about 7 loads of laundry per week)
- Clothes washer – 1 hour (assumes about 7 loads of laundry per week)
- Computer, monitor, and printer – 24 hours (assumes never turned off)
- Television – 5 hours

In cases where minutes were used, the number of minutes per day was multiplied by 30 (for the average number of days in a month). That total was then divided by 60 to convert minutes to hours.

| Item | Average Wattage* | Average kW (Wattage per 1000) | x | # in House | x | Average Hours Used per Month | x | Cost per kWh (\$0.10) | = | Cost per Month | Cost per Year |
|--|------------------|-------------------------------|---|------------|---|------------------------------|---|-----------------------|---|----------------|---------------|
| Incandescent bulb - 60 W* | 60 | 0.06 | x | 7 | x | 180 | x | .10 | = | 7.56 | 90.72 |
| Compact fluorescent bulb - 60 W equivalent* | 18 | 0.018 | x | 7 | x | 180 | x | .10 | = | 2.27 | 27.24 |
| Coffee maker | 900 | 0.9 | x | 1 | x | 30 | x | .10 | = | 2.70 | 32.4 |
| Microwave | 1000 | 1.0 | x | 1 | x | 1 | x | .10 | = | 0.10 | 1.20 |
| Hair dryer | 1800 | 1.8 | x | 2 | x | 5 | x | .10 | = | 1.80 | 21.60 |
| Dishwasher | 1300 | 1.3 | x | 1 | x | 45 | x | .10 | = | 5.85 | 70.2 |
| Stove/Range (electric) | 12500 | 12.5 | x | 1 | x | 22.5 | x | .10 | = | 3.38 | 40.56 |
| Refrigerator/ Freezer | 500 | 0.5 | x | 1 | x | 720 | x | .10 | = | 36.00 | 432.00 |
| Clothes dryer (electric) | 5000 | 5.0 | x | 1 | x | 30 | x | .10 | = | 15.00 | 180.00 |
| Clothes washer | 500 | 0.5 | x | 1 | x | 30 | x | .10 | = | 1.50 | 18.00 |
| Computer, monitor, and printer | 200 | 0.2 | x | 2 | x | 720 | x | .10 | = | 28.80 | 345.60 |
| Television | 80 | 0.08 | x | 3 | x | 150 | x | .10 | = | 3.60 | 43.20 |



ENERGY DETECTIVES

Lesson Information

Overview

In this lesson, students will learn how money can be saved while also protecting the environment. Students begin by finding classmates that practice certain energy-consuming or energy-conserving behaviors and discuss why these practices are either good or bad. The cost to use common electronic devices will be calculated.

Objectives

Students will be able to:

- Identify actions that save money and conserve energy.
- Calculate the cost of energy consumption.

Vocabulary

Consumption, Cost

Suggested Extension Activities

1. Have students write an advertisement to be read during the school's morning announcements that explains why conserving energy can save money.
2. Have students draw posters showing how reducing energy with specific items can save money. Display them in the hallways.
3. Have students set personal conservation goals or discuss family goals and estimate the cost savings of each.

