

September activities

Classroom Power Down

In this activity, students prepare their classroom for break. You'll want to discuss the best way for each classroom to initiate power-down behaviors each day, weekend and long break.

Some schools may have teachers focus on this task, while others may ask students to be self-motivated to complete this task on the teacher's behalf.

Instructions

1. Review the attached checklist, identify the highest priority items for all classrooms in your school and find ways to roll out all checklist items school-wide by the end of the year.
2. Have students determine the things on their checklist that must happen each day and what will happen before long breaks.
3. Have students practice their daily power-down skills.
4. Print copies of the checklist for each classroom and determine who will be responsible for using the checklist.
5. On the last day of school before a long break, go through the classroom together to turn off, unplug and adjust all the items from your checklist.

Here are some things to look out for:

- Close doors, windows, blinds and shades. This helps the building's heating, ventilation and air conditioning work as it should.
- Turn off lights and ceiling fans. This eliminates the energy use that comes from powering them.
- Unplug electronics. Even when a device is turned off, it still uses electricity. Avoid unnecessary power waste by unplugging! Not sure if something should be turned off or unplugged? Check with your school's Energy Champion!

Find the classroom Power Down checklist at the end of this section.

Or to download and print it, visit EnergyRight.com/school-uplift-resources

Quick tip! When students remember every item on the checklist, don't forget to celebrate their teamwork in saving energy!

Classroom Power Down Checklist

Daily

- ☐ Close doors, windows and blinds/shades.
- ☐ Turn off lights, ceiling fans and decorations.
- ☐ Turn off TVs, radios, DVD players, etc.
- ☐ Turn off computers, monitors, speakers and printers.
- ☐ Turn off document cameras (Elmo), overheads and projectors.
- ☐ Turn off interactive whiteboards (SMART Board, Promethean ActivBoard, etc.).
- ☐ Turn off lamps and personal appliances (coffee makers, fans, space heaters, etc.).
- ☐ Turn off bathroom exhaust fan.

Short breaks

- ☐ Unplug TVs, radios, DVD players, etc.
- ☐ Unplug computers, monitors, speakers and printers.
- ☐ Unplug document cameras, projectors and interactive whiteboards.
- ☐ Unplug personal appliances (coffee makers, fans, space heaters, etc.).
- ☐ Unplug lamps (floor, desk, etc.), air fresheners and decorations (such as string lights).
- ☐ Unplug chargers (cellphones, laptops, etc.).
- ☐ Unplug electric pencil sharpeners and staplers.

Extended breaks

- ☐ Unplug clocks.
- ☐ Empty, defrost and unplug personal refrigerators.
- ☐ Remove perishable items from the classroom.

Common Areas Power Down Checklist

Daily

- ☐ Close doors, windows and blinds/shades.
- ☐ Turn off lights, ceiling fans, air fresheners and decorations.
- ☐ Turn off computers, printers, copiers and laminators.
- ☐ Turn off media equipment and audio systems (excluding PA system needed for emergencies).
- ☐ Turn off small appliances (microwaves, coffee makers, toasters, etc.).
- ☐ Turn off exhaust fans (excluding high humidity spaces and electrical rooms).

Short breaks

- ☐ Unplug computers, printers, copiers and laminators.
- ☐ Unplug small appliances (microwaves, coffee makers, toasters, etc.).
- ☐ Unplug lamps, air fresheners and decorations.

Extended breaks

- ☐ Unplug clocks.
- ☐ Unplug vending machines that do not require refrigeration.
- ☐ Empty, defrost and unplug nonessential refrigerators.

Measuring Energy Usage with a Digital Watt Meter

Students can use the digital watt meter from your School Uplift Welcome Kit to measure and analyze a classroom appliance's energy consumption (in kWh) to understand the impacts of Energy Vampires. Energy Vampires can draw power from the outlet even when the appliance is powered off.

What Is a Digital Watt Meter?

A digital watt meter is a small device that helps measure how much electricity an appliance uses. It works by checking the voltage (electric power) and current (electric flow) and then multiplying them to find the power in watts (W).

How Does It Work?

- Measures the electricity flowing through a device.
- Calculates power using a simple formula:
- $\text{Power (W)} = \text{Voltage (V)} \times \text{Current (A)}$
- Displays the results on a digital screen.
- Plugs into a wall outlet, and the appliance plugs into the meter.

What Can It Measure?

- Power (W) – How much electricity a device is using right now.
- Energy (kWh) – The total electricity used over time.
- Voltage (V) – The strength of the electricity.
- Current (A) – How fast the electricity is flowing.

Materials:

- Digital watt meter
- Classroom appliance (Chromebook charge cart, mini fridge or similar)
- Data recording sheet
- Calculator (optional)

1. Introduction

- Discuss the concept of energy consumption and why it is measured in kilowatt-hours (kWh).
- Introduce the digital watt meter and explain its function.
- Explain the experiment: measuring energy use of an appliance in different states.

2. Experiment Setup

- Identify electricity-consuming school appliances that may be known as “Energy Vampires.”
- Determine the amount of time that data will be collected in each operational state.
- Distribute data recording sheets.

3. Data Collection

- **First Observation:** Plug the appliance into the digital watt meter and record the power usage when the appliance is powered on.
- **Second Observation:** Turn the appliance off but keep it plugged in, then record the power usage.
- **Third Observation:** Unplug the appliance completely and check for residual power consumption.
- Students should note the readings and discuss any unexpected findings.

4. Analysis & Discussion

- Compare data across groups and identify trends.
- Discuss the concept of Energy Vampires and draw a conclusion.
- Brainstorm ways to reduce unnecessary energy consumption.

5. Conclusion & Reflection

- Have students summarize their findings.
- Discuss real-world applications and personal energy-saving habits.

Extension Activity:

Research the energy consumption of household appliances and create an energy-saving plan for home use.

MEASURING ENERGY USAGE WITH A DIGITAL WATT METER

Appliance	Powered On (kWh)	Powered Off, Plugged In (kWh)	Unplugged (kWh)

Observations:

MEASURING ENERGY USAGE WITH A DIGITAL WATT METER

Appliance	Powered On (kWh)	Powered Off, Plugged In (kWh)	Unplugged (kWh)

Observations:

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Classroom Power Down

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Some schools may have teachers focus on this task, while others may ask students to be self-motivated to complete this task on the teacher's behalf.

Instructions

1. Review the attached checklist, identify the highest priority items for all classrooms in your school and find ways to roll out all checklist items school-wide by the end of the year.
2. Have students determine the things on their checklist that must happen each day and what will happen before long breaks.
3. Have students practice their daily power-down skills.
4. Print copies of the checklist for each classroom and determine who will be responsible for using the checklist.
5. On the last day of school before a long break, go through the classroom together to turn off, unplug and adjust all the items from your checklist.

Find the classroom Power Down checklist at the end of this section.

- Close doors, windows, blinds and shades. This helps the building's heating, ventilation and air conditioning work as it should.
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- Unplug electronics. Even when a device is turned off, it still uses electricity. Avoid unnecessary power waste by unplugging! Not sure if something should be turned off or unplugged? Check with your school's Energy Champion!

Here are some things to look out for:

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Classroom Power Down Checklist

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- ☐ Close doors, windows and blinds/shades.
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- ☐ Turn off lamps and personal appliances (coffee makers, fans, space heaters, etc.).
- ☐ Turn off bathroom exhaust fan.

Short breaks

- ☐ Unplug TVs, radios, DVD players, etc.
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- ☐ Unplug chargers (cellphones, laptops, etc.).
- ☐ Unplug electric pencil sharpeners and staplers.

Extended breaks

- ☐ Unplug clocks.
- ☐ Empty, defrost and unplug personal refrigerators.
- ☐ Remove perishable items from the classroom.

Common Areas Power Down Checklist

Daily

- ☐ Close doors, windows and blinds/shades.
- ☐ Turn off lights, ceiling fans, air fresheners and decorations.
- ☐ Turn off computers, printers, copiers and laminators.
- ☐ Turn off media equipment and audio systems (excluding PA system needed for emergencies).
- ☐ Turn off small appliances (microwaves, coffee makers, toasters, etc.).
- ☐ Turn off exhaust fans (excluding high humidity spaces and electrical rooms).

Short breaks

- ☐ Unplug computers, printers, copiers and laminators.
- ☐ Unplug small appliances (microwaves, coffee makers, toasters, etc.).
- ☐ Unplug lamps, air fresheners and decorations.

Extended breaks

- ☐ Unplug clocks.
- ☐ Unplug vending machines that do not require refrigeration.
- ☐ Empty, defrost and unplug nonessential refrigerators.

Measuring Energy Usage with a Digital Watt Meter

Students can use the digital watt meter from your School Uplift Welcome Kit to measure and analyze a classroom appliance's energy consumption (in kWh) to understand the impacts of Energy Vampires. Energy Vampires can draw power from the outlet even when the appliance is powered off.

What Is a Digital Watt Meter?

A digital watt meter is a small device that helps measure how much electricity an appliance uses. It works by checking the voltage (electric power) and current (electric flow) and then multiplying them to find the power in watts (W).

How Does It Work?

- Measures the electricity flowing through a device.
- Calculates power using a simple formula:
- $\text{Power (W)} = \text{Voltage (V)} \times \text{Current (A)}$
- Displays the results on a digital screen.
- Plugs into a wall outlet, and the appliance plugs into the meter.

What Can It Measure?

- Power (W) – How much electricity a device is using right now.
- Energy (kWh) – The total electricity used over time.
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Materials:

- Digital watt meter
- Classroom appliance (Chromebook charge cart, mini fridge, or similar)
- Data recording sheet
- Calculator (optional)

1. Introduction

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- Introduce the digital watt meter and explain its function.
- Explain the experiment: measuring energy use of an appliance in different states.

2. Experiment Setup

- Identify electricity-consuming school appliances that may be known as “Energy Vampires.”
- Determine the amount of time that data will be collected in each operational state.
- Distribute data recording sheets.

3. Data Collection

- **First Observation:** Plug the appliance into the digital watt meter and record the power usage when the appliance is powered on.
- **Second Observation:** Turn the appliance off but keep it plugged in, then record the power usage.
- **Third Observation:** Unplug the appliance completely and check for residual power consumption.
- Students should note the readings and discuss any unexpected findings.

4. Analysis & Discussion

- Compare data across groups and identify trends.
- Discuss the concept of Energy Vampires and draw a conclusion.
- Brainstorm ways to reduce unnecessary energy consumption.

5. Conclusion & Reflection

- Have students summarize their findings.
- Discuss real-world applications and personal energy-saving habits.

Extension Activity:

Research the energy consumption of household appliances and create an energy-saving plan for home use.

MEASURING ENERGY USAGE WITH A DIGITAL WATT METER

Appliance	Powered On (kWh)	Powered Off, Plugged In (kWh)	Unplugged (kWh)

Observations:

MEASURING ENERGY USAGE WITH A DIGITAL WATT METER

Appliance	Powered On (kWh)	Powered Off, Plugged In (kWh)	Unplugged (kWh)

Observations:

September activities

Classroom Power Down

In this activity, students prepare their classroom for break. You'll want to discuss the best way for each classroom to initiate some power-down behaviors each day, weekend and long break.

Some schools may have teachers focus on this task, while others may ask students to be self-motivated to complete this task on the teacher's behalf.

Instructions

1. Review the attached checklist, identify the highest priority items for all classrooms in your school, and find ways to roll out all checklist items school-wide by the end of the year.
2. Have students determine the things on their checklist that need to happen each day and what will happen before long breaks.
3. Have students practice their daily power-down skills.
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- Unplug electronics. Even when a device is turned off, it still uses electricity. Avoid unnecessary power waste by unplugging! Not sure if something should be turned off or unplugged? Check with your school's Energy Champion!

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Classroom Power Down Checklist

Daily

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- ☐ Turn off interactive whiteboards (SMART Board, Promethean ActivBoard, etc.).
- ☐ Turn off lamps and personal appliances (coffee makers, fans, space heaters, etc.).
- ☐ Turn off bathroom exhaust fan.

Short breaks

- ☐ Unplug TVs, radios, DVD players, etc.
- ☐ Unplug computers, monitors, speakers and printers.
- ☐ Unplug document cameras, projectors and interactive whiteboards.
- ☐ Unplug personal appliances (coffee makers, fans, space heaters, etc.).
- ☐ Unplug lamps (floor, desk, etc.), air fresheners and decorations (such as string lights).
- ☐ Unplug chargers (cellphones, laptops, etc.).
- ☐ Unplug electric pencil sharpeners and staplers.

Extended breaks

- ☐ Unplug clocks.
- ☐ Empty, defrost and unplug personal refrigerators.
- ☐ Remove perishable items from the classroom.

Common Areas Power Down Checklist

Daily

- ☐ Close doors, windows and blinds/shades.
- ☐ Turn off lights, ceiling fans, air fresheners and decorations.
- ☐ Turn off computers, printers, copiers and laminators.
- ☐ Turn off media equipment and audio systems (excluding PA system needed for emergencies).
- ☐ Turn off small appliances (microwaves, coffee makers, toasters, etc.).
- ☐ Turn off exhaust fans (excluding high humidity spaces and electrical rooms).

Short breaks

- ☐ Unplug computers, printers, copiers and laminators.
- ☐ Unplug small appliances (microwaves, coffee makers, toasters, etc.).
- ☐ Unplug lamps, air fresheners and decorations.

Extended breaks

- ☐ Unplug clocks.
- ☐ Unplug vending machines that do not require refrigeration.
- ☐ Empty, defrost and unplug nonessential refrigerators.

Measuring Energy Usage with a Digital Watt Meter

Students can use the digital watt meter from your School Uplift Welcome Kit to measure and analyze a classroom appliance's energy consumption (in kWh) to understand the impacts of phantom load. Phantom load is the passive energy drawn from the grid, even when appliances are powered down.

What Is a Digital Watt Meter?

A digital plug-in watt meter works by continuously measuring the voltage and current flowing through an electrical circuit, then calculating the instantaneous power consumption (in watts) by multiplying those values together, displaying the result on a digital screen; essentially, it acts like a small computer that monitors your electricity usage in real-time by constantly sampling voltage and current and applying the formula: $\text{Power (W)} = \text{Voltage (V)} \times \text{Current (A)}$.

Key points about a digital plug-in watt meter:

- **Measurement:** It measures both the voltage (volts) and current (amperes) flowing through the circuit.
- **Calculation:** Using a microprocessor, it calculates the power consumption by multiplying the measured voltage and current.
- **Display:** The calculated power is displayed on a digital screen, often showing additional information like energy consumption (kilowatt-hours) and cost.
- **Plug-in design:** It is designed to be plugged directly into a standard power outlet, with the appliance then plugged into the meter itself.

What can a digital plug-in watt meter measure?

- **Instantaneous power (watts):** The current power usage of an appliance at any given moment.
- **Energy consumption (kilowatt-hours):** The total amount of electricity used over a period of time.
- **Voltage (volts):** The electrical potential in the circuit.
- **Current (amperes):** The flow of electricity in the circuit.

Materials:

- Digital watt meter
- Classroom appliance (Chromebook charge cart, mini fridge, or similar)
- Data recording sheet
- Calculator (optional)

1. Introduction

- Discuss the concept of energy consumption and why it is measured in kilowatt-hours (kWh).
- Introduce the digital watt meter and explain its function.
- Explain the experiment: measuring energy use of an appliance in different states.

2. Experiment Setup

- Identify electricity-consuming school appliances that may be known as “Energy Vampires.”
- Determine the amount of time that data will be collected in each operational state.
- Distribute data recording sheets.

3. Data Collection

- **First Observation:** Plug the appliance into the digital watt meter and record the power usage when the appliance is **powered on**.
- **Second Observation:** Turn the appliance **off but keep it plugged in**, then record the power usage.
- **Third Observation:** **Unplug the appliance completely** and check for residual power consumption.
- Students should note the readings and discuss any unexpected findings.

4. Analysis & Discussion

- Compare data across groups and identify trends.
- Discuss the concept of Energy Vampires and draw a conclusion.
- Brainstorm ways to reduce unnecessary energy consumption.

5. Conclusion & Reflection

- Have students summarize their findings.
- Discuss real-world applications and personal energy-saving habits.

Extension Activity:

Research the energy consumption of household appliances and create an energy-saving plan for home use.

Estimate the annual energy cost of an appliance based on their findings. Call your local power company to determine your cost per kWh.

MEASURING ENERGY USAGE WITH A DIGITAL WATT METER

Appliance	Powered On (kWh)	Powered Off, Plugged In (kWh)	Unplugged (kWh)
Example: Chromebook Cart	x.xx	x.xx	x.xx

Observations:

MEASURING ENERGY USAGE WITH A DIGITAL WATT METER

Appliance	Powered On (kWh)	Powered Off, Plugged In (kWh)	Unplugged (kWh)

Observations:
