



POWERSAVE SCHOOLS ROAD MAP GUIDE

WELCOME

Welcome to the PowerSave Schools Program! Since 1996, this program has helped schools educate students about energy efficiency, empowered students through leadership opportunities, and returned millions of dollars in energy savings to schools. PowerSave Schools achieve these goals through STEM-based lesson plans and hands-on applications that let students turn their knowledge into power. Program content focuses on energy efficiency, demand response, and renewable energy. Students learn how these elements work together to form holistic energy solutions known as Integrated Demand Side Management (IDSM).

The **PowerSave flash drive** you received has all the tools you need to build an exciting and successful program. The most important resource it contains is this **Road Map Guide (RMG)** which gives an overview of the entire year. The RMG breaks down the program into 12 sections that represent our three yearly meetings (Professional Development Workshop, Mid-Year Recharge, and End-of-Year Celebration), the PowerDown Challenge, and second semester benchmarks and objectives. There are a total of seven benchmarks that are accompanied by lessons and quizzes. The first four benchmarks are included within the PowerDown Challenge— a contest designed to raise school-wide awareness and supercharge your energy-savings. The year proceeds as follows:

- [Professional Development Workshop](#)**
 - [PowerDown Challenge 1: Energy Basics and Spreading the Word](#)
 - [PowerDown Challenge 2: Right-lighting](#)
 - [PowerDown Challenge 3: Conduct an Energy Audit](#)
 - [PowerDown Challenge 4: Holiday Shutdown](#)
- [Mid-Year Recharge](#)**
 - [Understand Energy Demand](#)
 - [Watts & Water](#)
 - [Explore Renewables](#)
 - [Green Your Career](#)
 - [Final Presentation](#)
- [End of Year Celebration](#)**

All the tools you need, and ideas about how to tackle the benchmarks, are provided in this guide. Plus, your Local Project Leader (LPL) will meet with your team regularly and provide interim support by email, phone, or text.

LESSON PLAN OPTIONS

Seven of the benchmarks are accompanied by lesson plans, which are aligned to Common Core and Next Generation Science Standards and designed to be integrated into your school's existing curriculum. You can implement these lessons yourself, or your LPL can lead the PowerSave Student Team through the lesson during a site visit. You can find additional resources including alternative follow-up activities at www.powersaveschools.org.

Information on tracking your school's energy use is included on the next page. Now let's start saving!

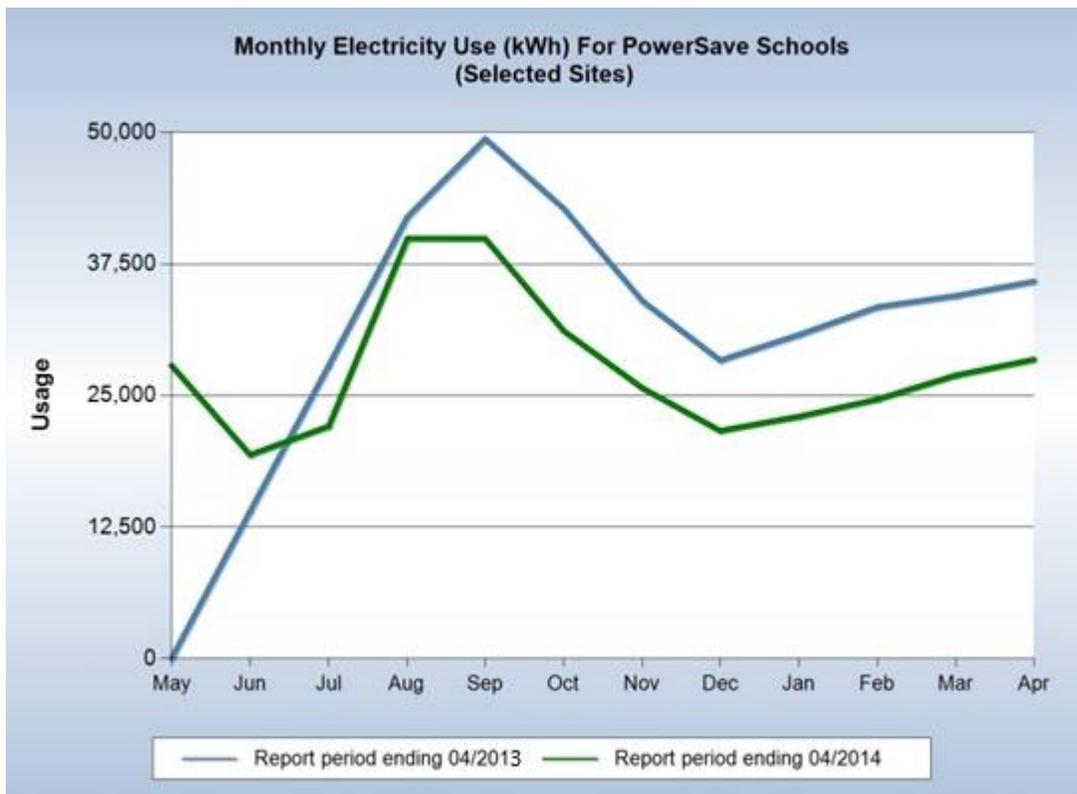
INTRODUCTION TO ENERGY TRACKING

In order to determine your energy savings progress, the PowerSave Schools program will be tracking your school's monthly electricity usage and comparing it against your previous year's bill. This will help us determine how much money you are saving and how effective your school's energy efficient practices truly are. You will also be able to see the percent change in your energy consumption and how many kilowatt-hours your school has been using. Data is normalized for weather and adjusted for changes in electric load caused by classroom additions, changes in usage, or new light fixtures.

Your LPL will provide you with reports similar to the following examples:

PowerSave Schools - Centennial High Utility Cost and Usage Savings Report for Period From 10/1/2013 To 4/30/2014

Service	Period End Date	Units	Current Usage	Predicted Usage	Usage Savings	% Chg	Current Cost	Predicted Cost	Cost Savings	% Chg
Electricity	10/2013	kWh	260,171	250,243	-9,928	4.0	\$18,275	\$17,577	-\$697	4.0
	11/2013		219,026	197,815	-21,211	10.7	\$17,410	\$15,724	-\$1,686	10.7
	12/2013		195,272	203,946	8,675	-4.3	\$14,638	\$15,288	\$650	-4.3
	01/2014		189,287	197,406	8,119	-4.1	\$17,443	\$18,192	\$748	-4.1
	02/2014		194,313	251,232	56,919	-22.7	\$27,297	\$35,293	\$7,996	-22.7
	03/2014		209,895	268,687	58,792	-21.9	\$16,967	\$21,720	\$4,753	-21.9
	04/2014		212,329	254,212	41,883	-16.5	\$18,682	\$22,368	\$3,685	-16.5
TOTALS			1,480,292	1,623,542	143,249	-8.8	\$130,713	\$146,162	\$15,449	-10.6

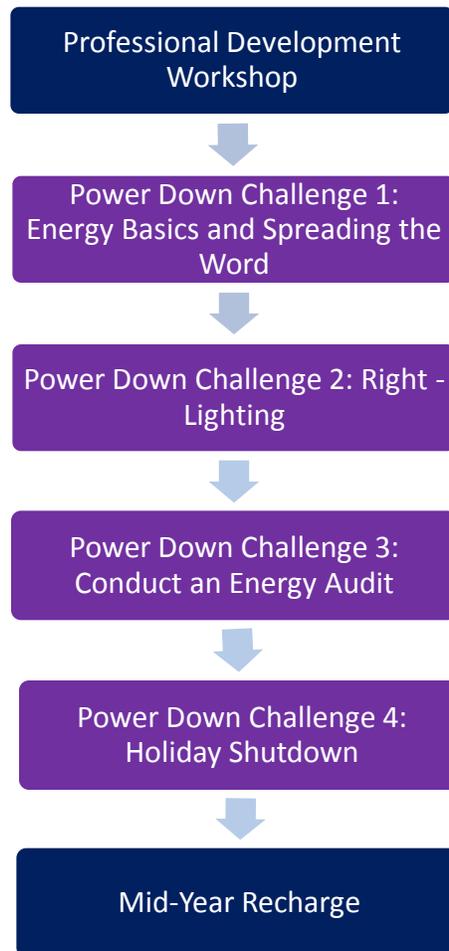




FIRST SEMESTER SUMMARY

OVERVIEW

The first half of the program introduces students to the basic concepts of energy and energy efficiency through STEM-based lesson plans and hands-on activities. The first semester concludes with a Mid-Year Recharge that brings all the district's teams together to share best practices, problem-solve challenges, and prepare for the Spring. The [PowerDown Challenge benchmarks](#) will educate your Team on energy, help them spread the word, and start a school-wide energy-saving contest.





Professional Development Workshop

The Professional Development Workshop (PDW) is a one-day training that occurs near the start of the school year for the adult members of each school's PowerSave Team. At the workshop you will learn about the program, receive PowerSave Schools resources, and work with your Local Project Leader (LPL) on planning recruitment of your student team and the launch of your program.

YOU WILL RECEIVE

- A **PowerSave flash drive** which includes
 - **PowerSave Road Map Guide** which provides the framework for the program and explains each benchmark that the team must complete.
 - **Important documents** needed throughout the year such as audit sheets, talent waivers, and pledges.
- A **Road Map Guide Journal** in which you can take notes during the PDW and give to your student team to record their progress throughout the year.
- A **Toolkit** containing diagnostic tools that you and your students will use to assess energy use in your school, along with training on how to use those tools (one toolkit per school).
- An **introduction to the program and to your LPL**, the dedicated PowerSave Schools staff member who will support you throughout the school year.
- **Food!** Coffee, a light breakfast, and a full lunch.

YOU WILL PROVIDE

- An **adult PowerSave Team**
 - **Usually includes two (or more) teachers and a custodian.**
 - **Recommended:** Invite **school administrators** to participate on your team and to attend the workshop.
- **Recommended:** Bring a laptop or tablet that you can plug your PowerSave flash drive into to follow along with the presentation.



TEAM LEAD NEXT STEPS CHECKLIST

During the workshop, you received a lot of information about the PowerSave Program. Here is a checklist of “next steps” that will help you build your student team and prepare them for an energy-efficient year.

Have you recruited your team?

Have you scheduled a meeting time and location?

Time/Location: _____

Have your students turned in their Talent Waivers?

Have you scheduled a time to present the program to your fellow faculty members?

Time/Date: _____

Have you spoken to your LPL about scheduling an Energy Hog Assembly?

Time/Date: _____



RECRUITING STUDENT TEAM

Grades K-2

Introduction

The PowerSave Schools program is designed to be **student-led**, so selecting and organizing your student team will be the most important thing you do. Team meetings should take place **weekly**, have a set location, and last at least 30-45 minutes.

RECOMMENDED WAYS TO FORM YOUR POWERSAVE TEAM

1. Take advantage of your after-school program. Meeting after school with students who already stay late is a great way to maintain a consistent weekly meeting time and helps to ensure student attendance.

OR

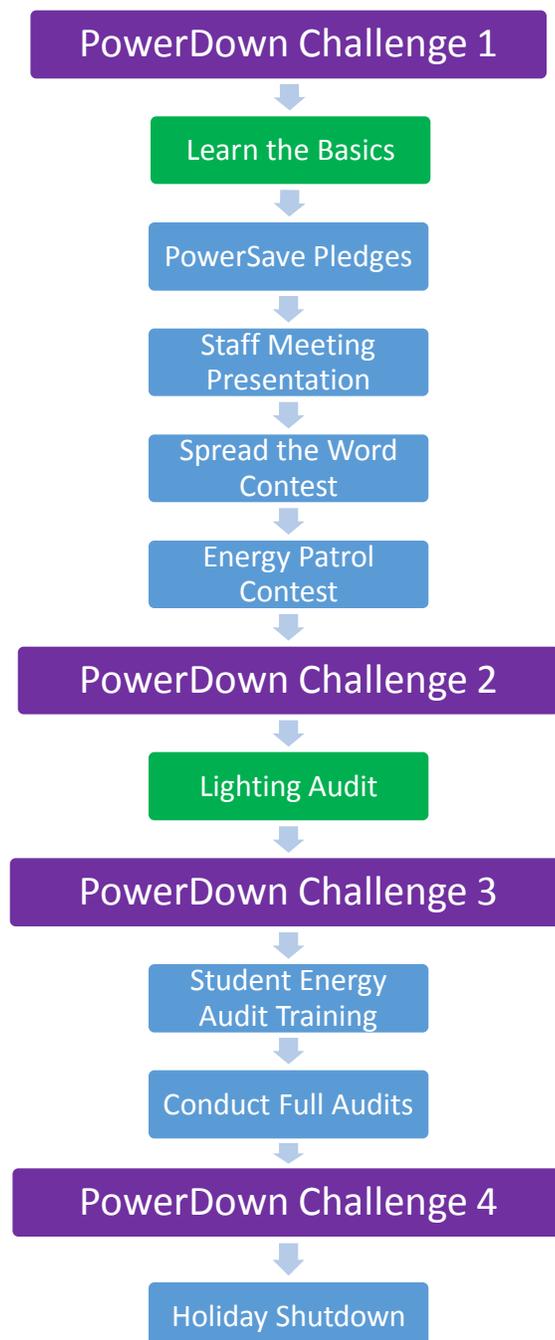
2. Make your class the PowerSave Team. This allows you to have weekly PowerSave meetings during class time and gives you the flexibility to have them work on PowerSave projects as you see fit.

Anatomy of a K-2 PowerSave student team:

- The ideal team is comprised of 10-30 members.
- Select a Student Energy Captain, who will help remind the other team members about upcoming PowerSave meetings.
- If possible, include students from multiple classes so they can be in charge of updating their classroom about monthly energy savings.
- Recruit students through morning announcements.
- Recruit students to your existing team by using an Energy Hog Assembly or have the Hog make an appearance during class, lunch, or school events.
- Remember to give out Talent Waivers.

THE POWERDOWN CHALLENGE

The PowerDown Challenge is a contest to see which class within your school can save the most energy. It introduces students to the basic concepts of energy and energy efficiency through STEM-based lesson plans and hands-on activities. It consists of four benchmarks: **PowerDown Challenges 1, 2, 3, and 4**. All benchmarks contain follow-up **activities**, and PowerDown Challenges 1-3 include **traditional lessons**. You can use your Road Map Guide Journal to keep track of your team's progress, upcoming projects, student ideas, and assigned responsibilities.



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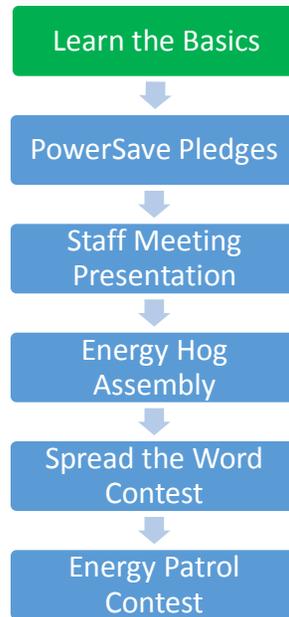


PowerDown Challenge 1: Energy Basics and Spreading the Word

OVERVIEW

PowerDown Challenge 1 introduces your students to the fundamentals of energy and energy efficiency and helps them plan their school-wide outreach. Students learn what energy is, where it comes from, and why it is important to save it. They also spread the word through PowerSave Pledges, a staff meeting, and an Energy Hog assembly. This challenge contains a [lesson plan](#) and follow-up [activities](#) specifically geared towards K-2 students.

POWERDOWN CHALLENGE 1 OBJECTIVES





LEARN THE BASICS

Grades K-2

When: 1st team meeting

Goal: Completion of lesson plan and quiz.

Teacher Prep: Prepare to deliver lesson plan and follow-up activity.

Introduction

Before your team begins to promote energy efficiency at your school, they need to learn the basics of energy themselves. In our first lesson, *Learn the Basics*, students learn why energy matters and how to spot energy waste at school. After you or your LPL deliver the lesson, students will engage in a quick follow-up activity and demonstrate their newfound energy expertise. You can find a printable version of this lesson on your PowerSave flash drive. The following are some basic ways for classrooms to save energy.

THE BIG 4

1. Right-Lighting

(Utilizing the best light level for a classroom determined the Illuminating Engineering Society)

2. Last Out Lights Out

(Turn out the lights when you leave a room)

3. Closing doors and windows when HVAC is on

4. Putting computers to sleep/turning off appliances

LESSON PLAN OPTIONS

- The LPL can deliver the lesson plan to the students
- The Team Lead can teach traditional lesson plan to the team by integrating it into the school curriculum. The printable version of the lesson plan is included on the PowerSave flash drive.



POWERSAVE PLEDGES

Grades K-2

When: 1st team meeting and staff meeting

Goal: Distribute and receive signed pledges at a staff meeting.

Teacher Prep: Print Pledges, distribute and collect pledges at staff meeting or designate an area to turn in pledges (i.e., a folder on your desk).

Introduction

The **PowerSave Pledges** are a great way to get your school's faculty involved in saving energy. We have provided you with a printable PowerSave Pledge on your flash drive. You can also ask your LPL to bring additional hard copies to your first meeting. Alternatively, your student team is free to customize their own pledges!

Pledges should be **distributed and collected at a staff meeting** (see next activity). The Team might also reach out to teachers in other ways such as visiting classrooms individually, entering participating teachers into a raffle, or placing the pledge in teachers' mailboxes. After all signed pledges have been collected, make sure to create a list of all the participating teachers and their room numbers.

WHAT DOES SIGNING A PLEDGE CONFIRM?

1. The teacher acknowledges that their school is trying to save energy.
2. The teacher promises to participate in the Big 4 energy-saving practices.
3. The teacher allows the PowerSave Team to conduct an energy audit of their room in the future.
4. The teacher will assign a new "Energy Saver" every week to monitor their classroom.
5. The teacher participates in the PowerSave Patrol Contest (see Contest Patrols below).

PowerSave Energy Pledge



I, _____, understand that my school is trying to save energy and money through the PowerSave Schools Program. I pledge to try the following energy-saving practices in my classroom:

1. **Right-lighting**
2. **Last Out Lights Out**
3. **Closing doors and windows when the AC/heater is on**
4. **Turning off computers when not in use**

I will allow the **PowerSave Team** to conduct an **energy audit** of my classroom to determine my **right-lighting level** and investigate where energy is being wasted. I will also assign one member of my class to be the **“Energy Saver”!** They will ensure the lights are turned off when everyone leaves the room.

I will also take part in the **PowerSave Energy Patrol Contest**. The classroom that sticks with the most energy-efficient behaviors wins a **prize!**

My classroom is on board to help the PowerSave Team!

Signature: _____ Date: _____ Classroom #: _____

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My classroom is on board to help the PowerSave Team!

Signature: _____ Date: _____ Classroom #: _____



STAFF MEETING PRESENTATION

Grades K-2

When: After 1st team meeting

Goal: Students introduce their energy savings goals at a staff meeting and collect energy pledges from teachers.

Teacher Prep: Schedule date to present at staff meeting, help prepare PowerPoint or other materials (such as posters), help the team practice presenting, and prepare PowerSave Pledges.

Introduction

Since teachers are the gatekeepers of energy use in their classrooms, they are also where energy-efficiency begins. The first step is to let them know about PowerSave Team’s energy-savings goals. The most persuasive ambassadors of this message are your students—so we suggest you arrange for your PowerSave team to introduce themselves at the first available **staff meeting**, show teachers simple ways to save energy, and ask them to pledge their support.

The PowerSave Team should encourage each teacher to assign a student in their classroom to be the “**Energy Saver**”! This student will be in charge of turning off the lights when everyone leaves and making sure the class is saving energy by participating in The Big 4.

THE 5 MINUTE PRESENTATION SHOULD ADDRESS

1. Who the PowerSave Team is
2. How much money the school spent on electricity last year
3. How much the PowerSave Team is planning to save
4. Why wasting energy is harmful to people and the environment
5. Ways to save energy around the school (The Big 4)
6. Assigning an “Energy Saver” to each classroom
7. How signing the PowerSave Pledge will help the school
8. Announcement of the Patrol Contest and what the classrooms can win by participating

There is a **staff meeting PowerPoint template** on your PowerSave flash drive which you are free to personalize and use in your presentation. Your team is also welcome to create their own presentation or use posters! At the end of the presentation, your team will hand out the **PowerSave Pledges** for teachers to sign. Teachers are encouraged to **sign them on the spot and** return them.



FACILITIES STAFF OUTREACH

Grades K-2

When: After Staff Meeting Presentation

Goal: Create dialogue between students, the principal, and custodial/facilities staff.

Teacher Prep: Schedule date for the team to discuss Custodian Best Practices with a custodial/facilities staff representative and the principal.

Introduction

Since custodial/facilities staff are the behind-the-scenes gatekeepers of energy use in the school, they can assist the team in implementing energy-efficiency. The first step is to let them know about the PowerSave Team's energy-savings goals. An excellent way to foster custodial/facilities staff involvement with the team is to create dialogue between staff, students, and the principal- we suggest arranging for your PowerSave team to review the Custodian Best Practices with both the principal and a member of the custodial/facilities staff present. Have students learn what the custodial/facilities staff is already doing to be energy efficient and identify areas where they can make quick, simple fixes. Having the principal in attendance allows authorization to be granted for any larger changes.

The **Custodian Best Practices** is located in the Road Map Guide and on your PowerSave flash drive.

We encourage the team to recognize the hard work of the custodial/facilities staff. Thank you notes, baked goods, loudspeaker announcements, and other signs of appreciation are a great way to show the custodial/facilities staff how important they are to the team!



Best Practices for PowerSave Custodians

Following these practices has helped PowerSave schools reduce energy consumption by **5-15%**.

LIGHTING

- All interior lighting should be turned off in any area that will be unoccupied for more than 15 minutes
- After hours, only turn on lights in the area where you are currently working. Turn off all lights when you leave
- Exterior lighting should be off during day light hours
- Stadium lights turned on no more than 0.5 hours before dusk or game time, whichever is later. Turned off when not in use

HVAC

- Heating season:
 - Classroom/office temps be set between 68-72 when occupied
- Cooling season
 - Occupied hours; thermostat set at or above 74 degrees and turned off when area is unoccupied
 - AC units shut down by 4 each day (unless after school event)
 - AC be turned off in classrooms during summer months, unless being used
- Year round
 - All windows and exterior doors should be kept closed to prevent hot or cold air from escaping the building.
 - Make sure ventilation ducts are not obstructed
- Building equipment set-points
 - Water heaters: hot water temp set point will be 120 degrees, with the exception of food service operation
 - Building automation controls: optimize building start/stop equipment schedules to minimize operating time and stagger start-up times to limit electrical demand.

GENERAL EQUIPMENT

- Computers shut down each day (or put into automatic sleep mode—consult with IT dept.)
- All building exhaust fans turned off during unoccupied hours
- Electrical equipment should be shut down or unplugged over long weekends and breaks

WATER

- Repair leaking faucets and faulty flush valves promptly
- Make sure irrigation systems are turned off when it rains
- Irrigate only in early morning or late evening hours to minimize evaporation
- Install faucet aerators spray nozzles to minimize water use and reduce hot water consumption



ENERGY HOG ASSEMBLY

Grades K-2

When: As soon as it can be scheduled

Goal: Introduce the PowerSave Team to the student body and encourage students to save energy in a fun, interactive way. The Energy Hog Assembly is available to **grades 2 through 5** only.

Teacher Prep: Schedule date for assembly and help team practice introducing themselves

Meet the Energy Hog

The Energy Hog is an engaging—but dastardly—character who makes learning about energy efficiency and conservation fun. The Energy Hog makes energy (and energy waste) tangible, providing an unforgettable illustration of the PowerSave Team’s message.

The **Energy Hog Assembly** is a fantastic way to generate awareness for the PowerSave program throughout the whole school. It is especially effective for grades 2-5 students since it provides concrete examples and memorable characters that make energy conservation come alive! Schedule the hog as early in the semester as possible.



Your LPL will have the complete assembly ready to go! The performance usually lasts between 20-30 minutes with a maximum of two performances a day. Your LPL may need assistance from one adult team member during the assembly and will coordinate this with you in advance. Have your PowerSave Team and Team Lead

POWERSAVE TEAM INTRODUCTION

1. Describe who the team is, their goals, and how much money they plan to save.
2. Present some visuals such as posters that display how much money the school spends annually on electricity and how much they plan to save.
3. State when their meeting time is (if you wish to recruit new members).
4. Introduce the LPL as “the Energy Hog Buster”.
5. Try to keep the introduction between 3-5 minutes.

introduce the assembly. This will give you a chance to share your goals with the whole school.

GETTING THE MOST OUT OF THE HOG

You can feature the Hog in videos, have him appear at an Open House or Back to School Night, or even incorporate him into your own skit or assembly! For more ideas and info, check out the “Energy Hog” folder on your **PowerSave flash drive** or go to <http://www.energyhog.org/>.



SPREAD THE WORD CONTEST

Grades K-2

When: After Staff Meeting Presentation or after Mid-Year Meeting

Goal: Get the word out about PowerSave energy saving goals to the student body and encourage students to save energy in a fun, interactive way.

Teacher Prep: Schedule dates for the team to conduct contests; help generate awareness about the contest by having students make announcements.

Poster Contest

Poster contests are a great way to bring attention to the Energy Patrol Contest, but rather than having your team do all of the work, turn poster making into a school-wide contest! Have students create colorful posters that include ways to save energy at school.

Poster Contest Tips:

- 1) Establish a firm due date and place for poster drop off
- 2) Remind students to write their name and grade on the back of each entry
- 3) Create a set of entry requirements (ex. must have color, include at least one energy saving tip, etc.)
- 4) Give the poster contest a theme (ex. Your school's mascot being energy efficient)
- 5) Offer a prize (Local Project Leaders can provide prizes such as PowerSave stickers or t-shirts)

After the contest, make sure to post student posters around campus to further your outreach!



ENERGY PATROL CONTEST

Grades K-2

When: After 2nd team meeting

Goal: The Team will encourage school participation in energy savings with the Energy Patrol Contest.

Teacher Prep: Help generate awareness for patrols by reminding teachers that the team will be visiting classrooms, and print off copies of Energy Patrol Checklists. A team lead or Local Project Leader should be available to supervise students during their patrols and to fill out the Energy Patrol Contest Checklist.

Introduction

Your team is now ready to start their **PowerSave Energy Patrol Contest!** The contest is designed to encourage energy efficient behaviors and reward the classrooms that do this consistently. The PowerSave Team patrols classrooms during their regular meeting time to check for Last Out Lights Out. The classroom that is adopts these behaviors most consistently will win a prize!

PATROL CONTEST PLANNING STEPS

- 1 Identify which classrooms the Team will be checking for energy saving behaviors
- 2 Review Energy Patrol Checklist sheet
 - Look over the Energy Patrol Checklist provided in your Road Map Guide Journal
 - If needed, print extra copies of the Checklist
- 3 Plan patrols
 - Patrol classrooms during PowerSave meetings, at recess, lunch, or after school
- 4 Publicize
 - Make posters advertising the contest
 - Make loudspeaker announcements about the contest
- 5 Schedule patrols once per week or every other week
- 6 Let the school know who is saving the most energy
 - Make weekly announcements
 - Give classrooms “Energy Stars” each time they are saving energy
- 7 Prizes can be provided by LPL, Team Lead, or the school Principal
 - PowerSave t-shirts for teachers
 - Extra recess time
 - Pizza/popcorn/donut party
 - Free dress day

Patroller Names: _____

ENERGY PATROL CONTEST CHECKLIST

1 Point	Lights = Last Out. Lights Out!
1 Point	A/C = Doors and windows CLOSED when the A/C is ON OR doors OPEN with A/C OFF
1 Point	Appliances = Computers shut down or in sleep mode when not in use

Classroom #	Energy Behaviors	Patrol 1	Patrol 2	Patrol 3	Patrol 4	Patrol 5	Patrol 6	Patrol 7	Patrol 8	Patrol 9	Patrol 10	Patrol 11	Patrol 12	Patrol 13	TOTAL POINTS
		Date:	Date:	Date:	Date:										
	Lights														
	A/C														
	Appliances														
	Lights														
	A/C														
	Appliances														
	Lights														
	A/C														
	Appliances														
	Lights														
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ADD STAR TAG TO YOUR ENERGY PATROL

Grades K-2

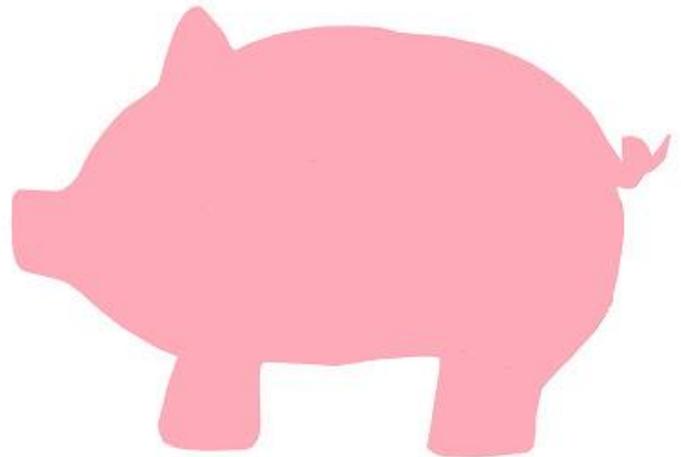
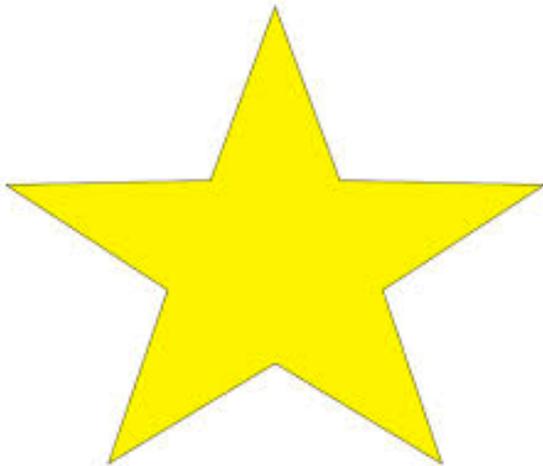
When: During Energy Patrol Contest

Goal: The Team will encourage school participation in energy savings with the Energy Patrol Contest.

Teacher Prep: Print off copies of tags (hogs, stars, etc.)

Introduction

Now that your Team has begun their Energy Patrol Contest, it is time to get students, faculty, and staff excited about saving energy! Star Tag is a great opportunity to reinforce positive behaviors and encourage participation in the contest. During their weekly patrols, students will leave behind a star in classrooms that are being energy efficient. Some schools also opt to leave a hog tag behind in classrooms that still have some work to do.



3



PowerDown Challenge 2: Right-lighting

OVERVIEW

PowerDown Challenge 2 focuses on training the PowerSave Team to complete lighting audits in classrooms and start an Energy Patrol contest to maximize energy savings. Classroom lighting is one of the biggest sources of energy consumption in schools and it is something students and teachers can easily control. K-2 students will learn to use the light meter in order to assess right-lighting levels, increasing their familiarity with basic arithmetic as they make data-based recommendations for each classroom so the school can start saving immediately.

POWERDOWN CHALLENGE 2 OBJECTIVES

Lighting Audit





LIGHTING AUDIT ACTIVITY

Grades K-2

When: 2nd Team meeting

Goal: The Team will conduct lighting audits of classrooms in order to make right-lighting recommendations.

Teacher Prep: Identify rooms that the team can audit, reach out to the school custodian to accompany the team during their audit

Introduction

Lighting consumes 30-50% of electricity used by a school and many classrooms are dramatically over-lit. Over-lighting a classroom can cause eye strain, affect concentration, and make the classroom a harder place to learn.¹ Therefore, one of the best ways to begin your efficiency programs is to focus on lighting. The Lighting Audit Process box below can be used to instruct the PowerSave Team on how to conduct a **lighting audit**. The Team will also practice creating lighting recommendations and presenting their results to teachers.

LIGHTING AUDIT PROCESS

1. Use the **light meter** to read the light level in each room.
2. The LPL or the Team Lead will find the **average** of three different light level readings in each room.
3. **Adjust lighting configurations** (if there are multiple light switches) and measure each one until the room is within the right-lighting range.
4. Make a **lighting recommendation** to the teacher (may include leaving a light switch reminder or taping light switches with permission from the teacher)

After you or your LPL has delivered instructions on conducting a lighting audit, your team will be ready to start visiting classrooms to take light readings. Start with classrooms that have signed pledges, but don't forget to audit common areas like the main office, computer lab, library, hallways, etc. Ideally the students will conduct light audits during a Team meeting with the aid of the Team Lead, LPL, or custodian.

¹ Canadian Center for Occupational Health and Safety (CCOHS)

LIGHT LEVEL RECOMMENDATIONS

WHAT IS RIGHT-LIGHTING?

Right-lighting is the level of light in the classroom that falls within the range recommended by the Illuminating Engineering Society (IES). **Classrooms in which the light level is between 30-50 foot-candles are usually best suited for student learning.**

IES Suggested Light Levels

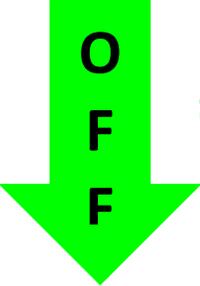
Building type	Foot-candle level
Classrooms	30-50
Science lab	100
Auditorium	10-30
Gym	30-50
Office	40-60 (reading and transcribing 70)
Computer lab	15-30
Hallways	5-10

Who is the Illuminating Engineering Society?

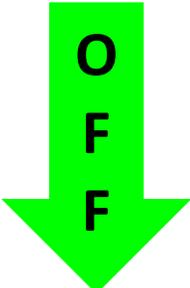
The Illuminating Engineering Society (IES) is a collegial community dedicated to improving the lighted environment by developing standards for electrical lighting usage. The IES has developed studies to establish recommendations for the optimum light levels in classrooms and other school spaces. Common school room types and their recommended foot-candle levels can be seen above. Students will learn about these recommendations and use the light meter to ensure that classrooms fall within the IES recommended range.

The Department of Energy's Lighting and Electrical Systems study and the IES's light level recommendation document are in the PowerSave flash drive. You can learn more about the IES at <http://www.ies.org/>.

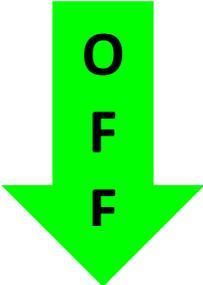
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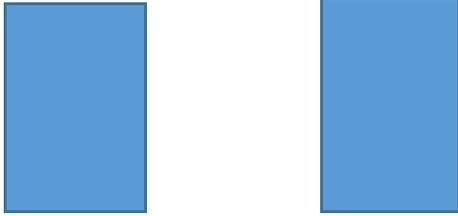
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...AND SAVE THESE



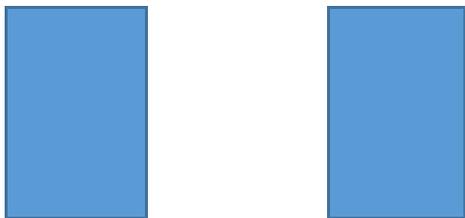
ONLY USE THIS SWITCH



KEEP THIS SWITCH OFF

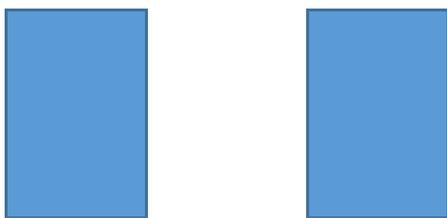
*After your team conducts a lighting audit, draw in arrows that point to the switch that should be left on and off. Cut out the blue squares and place over the light switch.

ONLY USE THIS SWITCH



KEEP THIS SWITCH OFF

ONLY USE THIS SWITCH



KEEP THIS SWITCH OFF

4



PowerDown Challenge 3: Conduct an Energy Audit

OVERVIEW

PowerDown Challenge 3 will train the PowerSave Team to become Energy Auditors and assess total energy usage at their school from lights, HVAC, and appliances. The students will conduct full audits of their classrooms and use the data to project potential savings numbers during second semester.

POWERDOWN CHALLENGE 3 OBJECTIVES

Full Audit Training



Conduct Full Audits





FULL AUDIT TRAINING

Grades K-2

When: 3rd Team meeting

Goal: Expanding on their lighting audit skills, students will learn how to conduct a full energy audit of their school (including lighting, HVAC, and plug load) by using tools from the PowerSave toolkit. The students will make energy-savings recommendations for teachers and add additional energy-saving behaviors to their Energy Patrol Contest.

Teacher Prep: Work with your LPL to schedule a time for the full audit training. This can be during a regular team meeting, but it may require additional time.

Introduction

A full energy audit helps the PowerSave Team investigate where energy is being used, where it is being wasted, and how they can maximize their savings. The **Master Energy Audit Sheet** and **Appliance Master Sheet** are included on the next pages.

FULL AUDIT STEPS

1. Use the flicker checker
 - Check for lighting inefficiencies
2. Use the Watt Meter
 - See how much electricity appliances use
3. Use the Temperature Gun
 - Check for heat leaks
4. Learn about energy efficiency concepts
5. Use the Master Energy Audit Sheet and Appliance Master Sheet
6. Create energy-savings recommendations
7. Conduct full audits of other classrooms



CONDUCT FULL AUDITS

Grades K-2

When: 4th meeting or after

Goal: The Team will conduct full audits of all pledged classrooms.

Teacher Prep: Schedule auditing times with students, monitor students to ensure they are auditing, and perhaps enlist a **custodian** to help the Team audit classrooms.

Introduction

The Team should try to audit as many pledged classrooms as possible through the year. These should take place during regular meeting time.

STEPS TO COMPLETING A FULL AUDIT

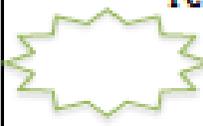
1. Schedule full audits during meeting times when a Team Lead, LPL, or custodian can help.
2. The whole team doesn't have to present for each audit. Small groups of 3-5 students are ideal.
3. Remember to bring the Master Energy Audit Sheet, tape, and light switch reminder signs.
4. Remind teachers of other ways to save energy besides using efficient lighting practices (i.e. closing doors and windows when the AC is on, putting computers to sleep, etc.).

MASTER ENERGY AUDIT SHEET

Classroom: _____ Teacher: _____

LIGHTING AUDIT

Lighting Level
Recommended Light Level for Classrooms:
30-50 Footcandles (FC)

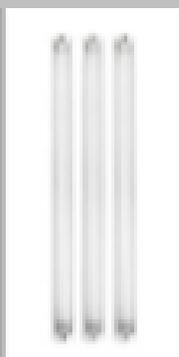
FC	FC	FC
_____ FC	_____ FC	_____ FC
FC	FC	FC
		

This room can:
Turn the _____ switch off.

Number of Lamps

Total number of lamps	
Number of lamps off with right-lighting	
Hours used per day	

Example:
3 Lamps

1 fixture often has 2-3 lamps

APPLIANCE AUDIT

Appliance Name	How Many?	Hours used per day:

TEMPERATURE AUDIT
Dept. of Energy recommends 68-78°

Temp 1: _____

Temp 2: _____

Temp 3: _____

Average: 

Is the room:

Too Hot Too Cold Just Right

Can the teacher control the temperature?

Yes No Somewhat

Are doors & windows closed when HVAC is on?

Yes/No

APPLIANCES MASTER SHEET

	How many watts does it use?		Can the appliance be turned off when no one is using it? (ask teacher)
Computer 	Active:	Sleep:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Monitor 	Active:	Phantom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Mini-fridge 	Active:		<input type="checkbox"/> Yes <input type="checkbox"/> No
Television 	Active:	Phantom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Projector 	Active:	Phantom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Smart Boards 	Active:	Phantom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Space Heater 	Active	Phantom	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other			<input type="checkbox"/> Yes <input type="checkbox"/> No

5



PowerDown Challenge 4: Holiday Shutdown

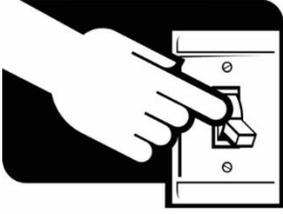
OVERVIEW

PowerDown Challenge 4 will teach students about the importance of turning off lights, adjusting HVAC settings, and shutting off electronics when school is not in session. The students implement a shutdown idea that will focus on major appliances that can be turned off/unplugged over break. Longer breaks like Thanksgiving, Winter, Spring, and Summer are some of your school's biggest energy-saving opportunities.

POWERDOWN CHALLENGE 4 OBJECTIVES

Holiday
Shutdown





HOLIDAY SHUTDOWN

Grades K-2

When: Before Thanksgiving break

Goals: The Team will implement a shutdown plan to get the school to turn off unnecessary items and maximize classroom energy efficiency over the break.

Teacher Prep: Prepare materials for shutdown checklists, plan to distribute these to staff.

Introduction

During weekends and holiday breaks, lights, HVAC, and appliances are sometimes left on in unoccupied rooms. This represents a huge savings opportunity, and it's the PowerSave Team's goal to make sure this happens. Below, you will find resources for maximizing energy savings over holiday breaks. The Team should complete a shutdown before Thanksgiving break, and another one before Holiday Break

Shutdown Ideas

1. A sample shutdown checklist is included on the next page and on your PowerSave flash drive. Feel free to have your team personalize these or create their own!
2. You can sweeten your appeal to teachers by taping a fun-sized candy bar to your shutdown reminder.
3. Team should conduct shutdown announcements to encourage students and teachers to participate.

MAKING A LEADERBOARD

Now is a great time to make an Energy Savings Leaderboard! The Leaderboard highlights the competitive aspect to the PowerDown Challenge, comparing your school's energy (and dollar) savings to your district's average. The Leaderboard should be displayed in an area where the whole school can see it and should be easy to update with the school's monthly savings numbers. Be creative when making your board!

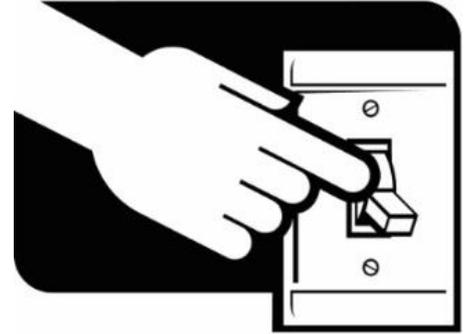


ENERGY SHUT DOWN CHECKLIST

Happy Holidays! Over the holiday break, please help the school save energy – and money – by doing a simple shutdown of your classrooms or office.

Before you leave for the day, please to ensure that:

- Lights** are turned off at the switch (do not rely on sensors).
- Thermostats** are off in unoccupied areas of the school and temperature set points are seasonally adjusted for summer.
- Computers** in the classrooms, offices, and computer labs are shut down, not just in sleep mode.
- All other appliances and equipment** (non-networked printers, speakers, projectors, TVs, etc.) are turned off or unplugged.
- Unplugging mini-refrigerators** saves lots of energy, but remember to clean them out, leave the door open, and let them drain while they defrost to avoid mildew.



Thank you for helping the PowerSave Team save energy and money this year! :)



ENERGY SHUT DOWN CHECKLIST

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Thank you for helping the PowerSave Team save energy and money this year! :)



Mid-Year Recharge

The Mid-Year Recharge (MYR) brings together representatives from all PowerSave Teams in your district to share first semester successes and challenges, and to plan for spring. This two-hour, after school event is scheduled between December and February. Your LPL will send you an invitation with details about the time/location of this event.

During the MYR you'll have time to work with your LPL to plan a Spring Recharge event. This will serve as a platform for announcing first semester winners of your classroom patrol contest, and will generate renewed excitement for your energy conservation program. Assemblies are an ideal vehicle for this; check your calendar for upcoming assemblies that the team can piggyback on. During the assembly, the Team needs to address the following:

Spring Recharge Assembly

1. Announce the first semester patrol contest winners
2. Announce that the energy patrol contest will continue second semester
3. Display the leaderboard and announce the district competition
4. Reinvigorate the school to save energy and restate goals of energy savings

In addition to the assembly, encourage your students to think of other ways to reach out to the school, like announcements, lunch time promotions, and in class presentations. The following is an overview of what you will provide and receive at the MYR:

YOU WILL RECEIVE

1. **Half of your yearly stipend** (provided the Progress Summary is completed).
2. **The chance to share** best practices and successful strategies.
3. **An overview of the second semester benchmarks** and the opportunity to plan your activities.
4. **A review of special award(s) criteria**; these awards will be given during the End of Year Celebration.

YOU WILL PROVIDE

- A completed Progress Summary** (template included on the following page). Your LPL will help fill this out during an interview with you, either in person or by phone. This form is required in order for your team to receive the Mid-Year stipends.
- A brief presentation** of an outstanding project within your program (optional). Coordinate this in advance with your Local Project Leader.
- PowerSave student attendance (optional)**. Having students present at meetings can be refreshing, and provides a wonderful leadership opportunity for those students. However, young students may find it difficult to stay for a longer meeting, and parents may have concerns as well. If you bring students to present, you are encouraged to arrange for them to be picked up right after their presentation, as the team planning time may not be conducive for young students.



Progress Summary

Purpose:

- Reflect on your progress and ensure your team is keeping on track with the PowerSave Schools program. Make any concerns or suggestions known to your LPL and the program.

Instructions:

- Please briefly describe how you completed each of the following benchmarks. *Any benchmarks not yet completed can be left blank here, to be completed following the spring semester.*
 - LPLs will schedule a 30-minute meeting by phone or in person to help you complete this form.
 - This form is **required for teams to receive their stipends at the Mid-Year and End of Year Meeting.**
 - **Please provide a description for each category below, as applicable. Include specifics of what you did, how you did it, the results achieved, and how you measured success.**
 - **PLEASE KEEP A COPY OF THIS SUMMARY TO BE COMPLETED AT THE END OF THE YEAR.**
-

SCHOOL NAME/DISTRICT:

ADULT TEAM MEMBER NAMES/POSITIONS:

Recruiting Your Student Team

- How many students are on the team? _____
- How were the students selected? (Are the students from one class, across grade levels, or only students who can stay for an afterschool club?)
- How often does your PowerSave Team meet and when? (Does your team meet during class, lunch, or after school?)

Sustainable Jersey Certification:

- Have you registered your school on Sustainable Jersey website?
- Have you included your LPL as a contributor to your Sustainable Jersey certification page?
- Which certification actions have you started? _____
- Have you started the certification online forms?

Learn the Basics

- Did you complete this lesson plan? _____ Yes _____ No
- If yes, how many students participated in the lesson plan? _____
- How was the lesson presented? ____ Team Lead (Video) _____ Team Lead (Traditional)
_____ LPL (Video) _____ LPL (PowerPoint/Verbal)
- Did you share this lesson plan with fellow teachers? _____ Yes _____ No
- If yes, with how many teachers did you share this lesson plan? _____
- What could be improved about this lesson plan? Did students understand the material? What activity did the team complete? Any other comments on the lesson?

Spread the Word (First Semester)

- What has your team done for school outreach? (i.e. assembly, etc.)?
- Has your team made any school announcements? _____
- Has your team presented at a faculty meeting? _____
- How many students did you reach? _____
- How many staff members did you reach? _____
- Did you do any related activities outside the school with the broader community?

Patrol Contest

- How has your team promoted the patrol contest (i.e. assembly, announcements, staff meeting, etc.)?
- How often does your team patrol? _____
- Which behaviors is your team targeting (i.e. Last Out, Lights Out, doors and windows closed when a/c is on, etc.)?
- How many students did you reach? _____
- How many staff members did you reach? _____
- Did you do any related activities outside the school with the broader community?

Begin Your Energy Audit

- Did you complete this lesson plan? _____ Yes _____ No
- If yes, how many students participated in the lesson plan? _____
- How was the lesson presented? _____ Team Lead (Video) _____ Team Lead (Traditional)
_____ LPL (Video) _____ LPL (PowerPoint/Verbal)
- Did you share this lesson plan with fellow teachers? _____ Yes _____ No
- If yes, with how many teachers did you share this lesson plan? _____
- What could be improved about this lesson plan? Did students understand the material? What activity did the team complete? Any other comments on the lesson?

Thanksgiving Break Shutdown

- Did your team perform an energy shut down prior to the school break? _____ Yes _____ No
- What did your team do in order to encourage a school shutdown?
- How many teachers, staff, & students participated in the energy shut down? (Provide your best estimate).

Winter Break Shutdown

- Did your team perform an energy shut down prior to the school break? _____ Yes _____ No
- What did your team do in order to encourage a school shutdown?
- How many teachers, staff, & students participated in the energy shut down? (Provide your best estimate).

---MID YEAR MEETING---

Your team should complete the previous benchmarks before the Mid-Year Meeting

Sustainable Jersey Certification:

- Have you included your LPL as a contributor to your Sustainable Jersey certification page?
- Have you completed the certification online forms?
- Which certification actions have you completed?
- Which certification actions are you currently working towards?
- How many categories have you completed (remember you need 6 for certification)?
- Have you received any feed back from Sustainable Jersey about your certification?

Watts and Water

- Did you complete this lesson plan? _____ Yes _____ No
- If yes, how many students participated in the lesson plan? _____
- How was the lesson presented? _____ Team Lead (Video) _____ Team Lead (Traditional)
_____ LPL (Video) _____ LPL (PowerPoint/Verbal)
- Did you share this lesson plan with fellow teachers? _____ Yes _____ No
- If yes, with how many teachers did you share this lesson plan? _____
- What could be improved about this lesson plan? Did students understand the material? What activity did the team complete? Any other comments on the lesson?

Final Presentation

- How many students participated? _____
- What was the format (PowerPoint, posters, report, etc.)? _____
- Who was your audience? _____
- How many people were reached through the presentation? _____ Students _____ Staff
_____ Community Members _____ Other
- Briefly describe your final presentation.

Spread the Word (Second Semester)

- What has your team done for school outreach? (i.e. assembly, etc.)?
- Has your team made any school announcements? _____
- Has your team presented at a faculty meeting? _____
- How many students did you reach? _____
- How many staff members did you reach? _____
- Did you do any related activities outside the school with the broader community?

Summer Break Shutdown

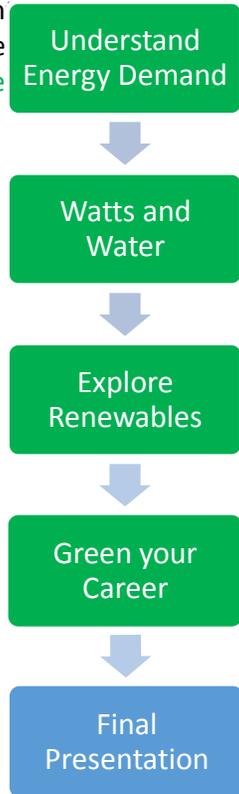
- Did your team perform an energy shut down prior to the school break? _____ Yes _____ No
- What did your team do in order to encourage a school shutdown?
- How many teachers, staff, & students participated in the energy shut down? (Provide your best estimate).



SECOND SEMESTER SUMMARY

OVERVIEW

The second half of the program focuses on expanding students' knowledge of energy-related topics such as water use, energy demand, and renewables while conducting school outreach and the Energy Patrol contest. They will also learn about potential green careers. The program concludes at the end of the year with a final presentation. The following benchmarks include traditional learning objectives.





Understand Energy Demand

Grades K-2

When: February Meeting

Goal: Completion of lesson plan and follow-up activity.

Teacher Prep: Review lesson plan on flash drive and prepare lesson plan materials.

Introduction

Knowing **how much** energy we use is the first key to energy efficiency, but **when** we use energy matters too. *Understand Energy Demand* teaches students to identify “peak demand” times and see how increasing energy use affects the both the power companies and your school’s energy bill. Students will learn how to use this knowledge to preserve resources and save money for your school and at home. The team will also complete an integrated follow up activity after the lesson.

Here are the basic terms the Team will be learning:

- **Energy demand:** total amount of energy being used at any given time
- **Peak demand:** the time when the greatest amount of energy is being used at once in a specific area
- **Demand response/demand management:** specific strategies used to manage peak energy demand

ENERGY DEMAND TIP

Both energy costs and power plant pollution drastically increase during peak demand hours (typically 3-8PM). Since schools let out when energy demand tends to ramp up, shutting down unnecessary appliances, computers, and lighting before you leave can help reduce strain on the power grid, lower energy costs, and reduce CO₂ emissions.

LESSON PLAN OPTIONS

- The LPL can deliver the lesson plan to the students
- The Team Lead can teach traditional lesson plan to the team by integrating it into the school curriculum. The printable version of the lesson plan is included on the PowerSave flash drive.

UNDERSTAND ENERGY DEMAND ACTIVITY, GRADES K-2

House Appliance Demand

Introduction

Our ultimate goal is “Integrated Demand Side Management” (IDSM). That may be a mouthful, but what it means is thinking about how much energy we use, when we use it, and where that energy comes from. This involves paying attention to energy efficiency, demand response, and renewables. The following activity begins to address IDSM.

Activity Overview

Students will be given an outline of a house to fill with pictures of appliances that they want to use during peak demand hours on a hot summer’s afternoon (usually 12-7pm). The catch is that not all of the appliances will fit in the house, which represents how electricity is in high demand during certain times like a hot summer’s afternoon. Therefore, students will have to pick and choose which appliances they want to use in order to help their utility avoid turning on expensive peaker plants or even prevent a blackout. Learning objectives for this activity can be found on your PowerSave flash drive.

ACTIVITY STEPS

1. The LPL will draw/project a picture of a house on the board.
2. The LPL will ask students to think of appliances they use on a daily basis at home and have them draw them into the house. The LPL can also provide a list of appliances.
3. The LPL will then lead the house through an average day and the three different load profiles (base load 10PM-6AM, intermediate load 8AM-3PM/8PM-10PM, peak load 3PM-8PM/ 6AM-8AM).
4. For each time period, the students will have to take away more and more appliances that they don’t need.
5. By the time the house reaches peak load, the house will have to have the least amount of appliances as possible.
6. If the students do not take away enough appliances that will cause a BLACK OUT and the LPL will scribble over the entire house.

Follow-up questions

1. Why do we want to use less electricity during peak demand?
2. What items aren’t as important to use?
3. What do we NEED to keep on?
4. What could we do to shift our demand from peak hours to someone else?



Watts and Water

Grades K-2

When: January Meeting

Goals: Complete lesson plan, conduct a water audit of the school, and complete a follow-up activity.

Teacher Prep: Help get faculty/custodian on board for a water audit.

Introduction:

Water is one of our most important resources, but did you know that our water use is closely tied to our energy use? The *Watts and Water* lesson will teach students where our water comes from, how it is tied with energy, why wasting water is bad for the environment, and ways to save water around the school and at home. Running your faucet for 5 minutes uses about as much energy as letting a 60 watt light bulb run for 22 hours! (EPA)

TIPS ON HOW TO SAVE WATER AT SCHOOL

1. Don't run water while lathering hands with soap
2. Turn off the faucet when done
3. Report leaks

After the lesson, the Team will be encouraged to conduct a **water audit** of the school as a follow-up activity. Ideally

LESSON PLAN OPTIONS

- The LPL can deliver the lesson plan to the students
- The Team Lead can teach traditional lesson plan to the team by integrating it into the school curriculum. The printable version of the lesson plan is included on the PowerSave flash drive.

the Team will conduct a water audit during meeting time with the help of the Team Lead, LPL, or custodian. Details on conducting a water audit are included on the following page.

WATER AUDIT ACTIVITY, GRADES K-2

Introduction

A water audit will help your PowerSave Team identify areas of water waste. The Team (with help from the Team Lead, LPL, or custodian) will conduct the water audit, continually look for leaks, and update their reporting system. They will also connect with facility staff to get them on board with their water saving practices and make posters to spread the word.

Water Audit Action Plan

1. Check for leaks
 - Measure water waste with drip gauge or flow rate bag and timer.
2. Record information on Water Audit Sheet.
3. Talk to facility staff
 - Have they seen leaks? Where?
4. Create awareness
 - Making posters or putting up signs with water-saving tips can help remind the school to save (make sure you ask permission before putting them in bathrooms).
 - Make announcements about saving water and how the school can help.
5. Create a leak reporting system
 - Report leaks to a facilities staff person, such as a custodian.
 - Have a box to drop off areas where a leak was seen.
 - Feel free to create your own reporting systems.



Water Audit Sheet K-2

Sinks

Use Flow Rate Bag + timer
Set the timer for 5 seconds.

Inefficient sinks: more than 2 gallons/minute (GPM)

Efficient sinks: less than 2 gallons/minute (GPM)

Room/area	After 5 seconds was the water above 2 gallons/minute?	If the water is above 2, can an aerator be installed?



Leaks

Use Drip Gauge + timer
Set the timer for 5 seconds
Safety Check: see if the water is hot before measuring the leak

NOTE: tell a custodian about any leaks!

Room/area	Gallons per day (GPD)	Is the water hot?

Sprinklers

Ask custodian/facility staff

Sprinkler setting times: _____

Are sprinklers turning on during the day?

Yes / No

If yes, can sprinkler setting times be changed so they go off at night/in the early morning?

Yes / No



Toilets

Ask custodian/facilities staff

What is the flow rate of the toilet? _____

If the number is bigger than 1.6 gallons per fl

Can low flow toilets be installed?

Yes / No

Are all the toilets in the school the same?

Yes / No

If no, find out what the flow rate is for other toilets.





Explore Renewables

Grades K-2

When: March Meeting

Goals: Competition of lesson plan and follow up activity.

Teacher Prep: Review lesson plan on flash drive and prepare lesson plan materials.

Introduction

Renewable sources of energy are replenished all the time. Here are some examples:

- Solar
- Wind
- Hydroelectric
- Tidal
- Geothermal
- Biomass

Explore Renewables will teach students about renewable sources of energy and their expanding role in a secure energy future. It will also address the trade-offs associated with each energy source to help students understand that a combination of energy efficiency, demand response, and renewable sources will be necessary for a secure energy future.

The team will complete a follow-up activity in which students will apply their knowledge of energy demand and renewables. Activity details are located on the following page.

LESSON PLAN OPTIONS

- The LPL can deliver the lesson plan to the students
- The Team Lead can teach traditional lesson plan to the team by integrating it into the school curriculum. The printable version of the lesson plan is included on the PowerSave flash drive.

RENEWABLE ENERGY ACTIVITY, GRADES K-2

Introduction

All energy originates from the sun. The most direct way to harness energy is from the sun itself! How can we do this? A simple way to get energy from the sun is by using a magnifying glass. This demonstrates the power of concentrated solar power to create heat.

Activity Overview

The sun sends light to earth that brightens our world and warms us up. We can also use magnifying glasses to take all the light that pass through them, and make that light come together in a single point—called a focal point. This is the distance from the magnifying glass at which all those bent light waves meet in a single point. If we aim the magnifying glass to the sun, and then put an object within the focal point of the sunlight passing through, that tiny point of concentrated sunlight will be so hot, it can cook something!

ACTIVITY STEPS

1. The LPL will bring a magnifying glass to the meeting.
2. The Team will gather outside and circle around the LPL.
3. The LPL will bring materials to heat up (marshmallows, paper, etc.).
4. The LPL will demonstrate the power of the sun and help the students use the magnifying glass as well.

Follow-up questions

1. What other elements do we use to power things?
2. Where do we get our energy?
3. Why is using renewable energy like solar power better?



Green Your Career

Grades K-2

When: April-May

Goal: Completion of the lesson plan and follow-up activity.

Teacher prep: Work with your LPL to schedule a green career speaker, green career day, or activities fair.

Introduction

Now that students have gained knowledge and skills in the energy field, they can use their energy literacy to think about green careers. Green careers help preserve our environment through actions, such as reducing energy and water consumption, reducing material waste, protecting ecosystems, or designing environmentally friendly products or systems.

The *Green Your Career* lesson not only address existing green careers, but ways to make *any* job green, such as a filmmaker that raises awareness about environmental issues or an artist who uses sustainable materials. The Team will also complete a follow-up activity that will expand the students' understanding of green jobs and pave their way to sustainable futures.

LESSON PLAN OPTIONS

- The LPL can deliver the lesson plan to the students
- The Team Lead can teach traditional lesson plan to the team by integrating it into the school curriculum. The printable version of the lesson plan is included on the PowerSave flash drive.

GREEN CAREER ACTIVITY, GRADES K-2

Overview

Although green careers may seem a long way off for K-2 students, it's never too early to get them started on an environmentally-conscious path. This activity will help students think about the kind of training green jobs require and how they could make any job greener. This activity allows students the chance to brainstorm jobs they'd like to do, tools used by workers in those fields, and training required. By coloring these details on a picture of their future self, students get to imagine themselves doing the green job of their dreams.

ACTIVITY STEPS

1. The LPL will draw an outline of a person on the board.
2. The students will come up with a job that will be written over the drawing.
3. The students will then think of what that job requires (tools, equipment, knowledge) and the LPL will draw/write their ideas into the figure.
4. Once the figure is filled, the students will come up with ways to make that job "green." These ideas will be written around the figure.
5. Once one figure is filled out, the LPL will draw another and choose a different career.
6. The process should be completed 3 times or until the students more easily understand how to make a job "green".

Follow-up questions

1. What is your dream job?
2. What are some things that someone in that career would do everyday?
3. If you did that job, how would you make that job greener?



Final Presentation

Grades K-2

When: April-May

Goals: The Team will create a Final Presentation and conduct it in front of the greater community.

Teacher Prep: Provide materials for final presentation; schedule final presentation date.

Introduction

Now that the Team has completed all the benchmarks and applied their knowledge to their energy audits, it is time to conduct a final presentation. The final presentation is an excellent way to let the greater community

FINAL PRESENTATION

1. A summary of the goals of the PowerSave Team
2. Highlights from the year (assemblies, audits, posters, videos, etc.)
3. Energy Auditing results
 - How did you conduct your audits (toolkit)?
 - What can students/teachers do to save energy easily?
4. Energy Patrol Contest review
 - Which classes saved the most?
5. How much money the school has saved so far
6. [OPTIONAL] Recommended upgrades/retrofits to reduce the energy waste at the school
 - Should the school look into renewable energy solutions? (solar, wind, etc)
7. Energy savings plan for next year
 - What should the school do next year to be energy efficient?

know about the Team's accomplishments while simultaneously teaching them how to further their energy savings at school and at home. The final presentation should include the following:

There is a Final Report PowerPoint Template on your PowerSave flash drive which you can edit with your school-specific findings and recommendations. The Team can also use posters, create a skit, demonstrate how to use the toolkit, or have the Energy Hog make an appearance. **Be creative!** Along with your final presentation, you can publish your findings in a school newsletter, post about your team on the school website, or put up a poster of your school's energy policies and savings.

Please choose one (or more) of the following in order to conduct your final presentation:

1. Staff meeting
2. School assembly
3. Community meeting (Open House, parent nights, carnivals, end of year celebrations)
4. Record videos and display on school website
5. School Board or City Council Meeting



End-of-Year Celebration

Congratulations! After a year of hard work, creativity, and accomplishment, it is time to celebrate. Held near the end of the school year, the End-of-Year (EOY) Celebration is the final all-schools meeting of the school year. The EOY Celebration brings PowerSave Schools teams together to highlight program successes and to recognize your outstanding achievements.

Exceptional accomplishments in energy education and conservation are honored with PowerSave Awards. Award categories may include Outstanding Energy Savings Activities, Best Student Learning, Outstanding PowerSave Team, Most Creative Community Outreach, and Best Green Career Activity, but unique awards are also given for especially creative projects and individuals. The EOY is also a wonderful opportunity to have your students present what they learned and achieved in the program. Student, parent, and other faculty attendance is encouraged along with district staff, local officials and press.

YOU WILL RECEIVE

- 1. The remaining half of your yearly stipend** (once you have completed your Progress Summary).
- 2. Celebration and recognition of your team and your school's efforts.**
- 3. Special program awards** granted to teams with outstanding programs.

YOU WILL PROVIDE

- A completed Progress Summary.** You must complete the old Progress Summary and either turn in a hard copy or email it to your LPL. This is required in order to receive your stipend.
- Your toolkit** with all the tools if requested by LPL.
- Student team presentations.** This can be your team's final presentation or just an overview of their successes. Please coordinate in advance with your LPL.

Summer Shut Down

Remember, we do track your energy savings over the summer, so be sure that your school remembers to be energy-conscious over break. You can remind teachers to complete a summer shutdown by giving them a checklist, making announcements, or putting up signs. It will also be beneficial to enlist the help of your school's custodians to ensure you are still reaching maximum savings.

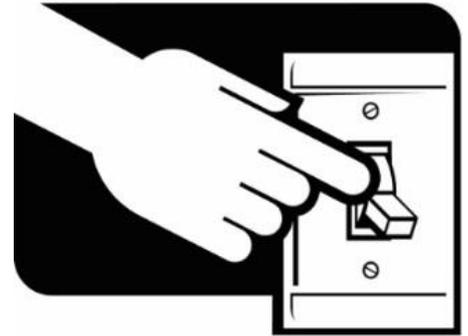


SUMMER SHUT DOWN CHECKLIST

Summer vacation is the school's biggest chance to reduce energy costs.
As you clean out your room, make sure to follow the steps below.

Before you leave for the summer, please to ensure that:

- Lights** are turned off at the switch (do not rely on sensors).
- Thermostats** are off in unoccupied areas of the school and temperature set points are seasonally adjusted for summer.
- Computers** in the classrooms, offices, and computer labs are shut down, not just in sleep mode.
- All other appliances and equipment** (non-networked printers, speakers, projectors, TVs, etc.) are turned off or unplugged.
- Unplugging mini-refrigerators** saves lots of energy, but remember to clean them out, leave the door open, and let them drain while they defrost to avoid mildew.



Thank you for helping the PowerSave Team save energy and money this year! :)

