



Energy Conservation

Best Practices Guide for Schools

Table of Contents

Overview of King County Green Schools Program	2
Recognition.....	2
Green Teams.....	3
Education, outreach, and advocacy for systems change	4
Activities and resources for students and staff.....	4
Energy conservation signs	7
Student and staff best practices at school	7
Best practices for school buildings	9
Tracking energy use.....	9
Lighting and plug loads.....	9
Heating, ventilation, and air conditioning	10
Green building resources	11
Assistance from school energy providers.....	11

Overview of King County Green Schools Program

King County Green Schools Program serves K-12 public and private schools and school districts throughout King County (except in the City of Seattle). The program's vision is that schools and districts will engage their students and staff in learning about sustainability and practicing resource conservation in their schools, homes, and communities.

Benefits for participating schools

- **Assistance.** The King County Green Schools Program provides [assistance and guidance](#).
- **Resources.** The program provides information, tools, indoor recycling bins, and signs.
- **Student learning and leadership.** The program offers guidance to student teams engaged in sustainability education and action. Students learn about resource conservation and develop leadership skills as they take action in their schools, homes, and communities. Action-oriented environmental education engages students, offers meaningful community service experience, and can improve learning and test scores.
- **Cost savings.** Conservation practices can save money in addition to protecting the environment and engaging your school community in learning and action.
- **Recognition.** Strengthen student, staff, and community ownership and pride. School and district [recognition](#). Student teams: [Elementary school Green Team recognition](#) and [Secondary school Green Team recognition](#).

Use this Best Practices Guide to:

- Learn about best practices for energy conservation.
- Find resources and tools, including ready-to-go templates for education and action.
- Learn how to achieve *Level Two - Energy Conservation* recognition.

The King County Green Schools Program can help with:

- Student and employee education.
- Project planning, including guidance for student teams.
- Resources and tools, including stickers and signs.
- Connecting to district staff who track energy use or work on energy conservation strategies.
- Achieving recognition.

Participating schools: Email GreenSchools@cplusc.com to request assistance.

Recognition

Your school can achieve Level Two recognition for maintaining its waste reduction and recycling actions, and educating students and staff about energy conservation while taking steps to conserve energy. Those actions can happen in one school year or over multiple school years. Actions your school has taken before participating in the program count toward recognition. *To receive program assistance, your school does not need to work toward recognition, and your school may focus on any resource conservation area.*

Level One recognition must be achieved before Level Two recognition. However, if desired, your school may work toward and achieve *Level Three - Water Conservation and Pollution Prevention* recognition before Level Two.

To be recognized as a Level Two Green School, fill out the recognition form linked [here](#). Level Two Green Schools receive a “Level 2” sticker for their Green Schools banner, and electric icon for websites and newsletters, and an updated school success story on the program website.

Level Two recognition requires your school to:

- Start or maintain a school team. Include at least one staff member. Student members or student teams are strongly encouraged, but not required for recognition.
- Tell your school community that your school is participating in the Green Schools Program.
- Continue Level One waste reduction and recycling education and practices. *(See the Waste Reduction and Recycling – Best Practices Guide for Schools on [this page](#).*
- Educate students, staff, and other school community members about energy conservation. *(See pages 4 – 8 for options and resources.)*
- Complete an energy conservation activity or project involving students or led by students along with adult advisor(s). The activity or project can include education, outreach, advocacy for systems change, or energy conservation practices or policies in your school, district, or community beyond your school. *(See pages 4 – 10 for options and resources.)*
- Follow energy conservation best practices at school, selected from options listed in this guide.
- Share your successes with your school community.

Green Teams

A Green Team is a group of school community members who work together on education and action for sustainability. Green Teams may include students, teachers, custodians, administrators, family, or community volunteers. The team can be any size, and can be a stand-alone group or class, or a part of another club or organization such as the Associated Student Body (ASB).

If your school is participating in the Green Schools Program, your student team is eligible to receive program help with project planning. Earn recognition for your student team by completing the Student Team Recognition Form. [Recognition Form](#) here.

Key tools and resources	
Green Team Guide: Strategies for Success	Find tips on starting and maintaining student teams.
Student Green Team Resources	Learn about guidance, project ideas and guides, resources, and recognition offered by the program for elementary school student teams or middle and high school student teams.

Education, outreach, and advocacy for systems change

Education and outreach are keys to improving energy conservation. Students at every grade level can learn about sustainability and conservation of natural resources, gain volunteer and leadership experience, and take action in their schools, districts, homes, and communities.

Students also have opportunities to: (1) influence systems change (focused on the whole and not only the parts) by partnering with others to understand and address the causes of a problem and by advocating for changes to policies, practices, laws, institutions, and social norms; and (2) help build the transition to a more equitable and low-carbon circular economy where materials and resources are conserved, greenhouse gas emissions are reduced, and green jobs are created.

Key tools and resources	
King County educational programs	Educational resources, including free classroom workshops for grades 1 – 12.
Energy conservation announcements	Use or modify these announcements to either kick-off or maintain energy conservation practices.
Energy conservation facts	Use in morning announcements, at lunch, at assemblies, in emails, in newsletters, on the school website, on social media, etc. to educate students, staff, and families.
Fact vs Fiction – energy conservation PowerPoint presentation	Use this presentation to educate students and staff.
Sample email from principal to school staff about energy conservation	Use or revise this sample email to encourage staff to conserve energy and serve as role models for students.

Activities and resources for students and staff

Education, outreach, and advocacy can be carried out in student teams, classrooms, school-wide, district-wide, and beyond your school or district. Scroll through these options to find an activity or resource for your school or team!

- Energy conservation education.** Include in subjects such as science, math, reading, and current events. **Resources:** [Lesson Plans, Teacher Guides, and online Environmental Resources for Educations: Energy – U.S. EPA](#); [National Energy Education Department \(NEED\) Curriculum Resources](#); [U.S. Department of Energy – Education Resources for K-12 schools](#); [Teacher workshops — Albuquerque Public Schools \(aps.edu\)](#); [National Geographic energy efficiency lesson plan \(grades 7- 12\)](#); and [Seattle City Lights tours and education](#)
- Energy conservation facts and tips.** In classrooms, morning announcements, assemblies, staff meetings, the school newsletter, the school website, or social media, share why energy conservation matters - and what we can do to conserve energy. **Resources:** [Energy conservation facts and tips](#); [Energy conservation announcements](#); [Energy and fuel fact sheet](#) (how recycling saves energy) from Washington State Recycling Association; and best practices on pages 7 - 8.

- **Energy conservation pledge.** A pledge can be used school-wide, in a classroom, or for staff, and can include actions to reduce energy use at school and at home. **Resources:** Use or revise this [Energy conservation pledge for students](#); and include [Energy Conservation Facts and Tips](#) and best practices listed in this guide to include in your energy conservation pledge
- **Climate change connections.** Educate students and staff about how conserving energy reduces greenhouse gas emissions. **Resources:** [Confronting Climate Change](#) - King County infographic; [Project Drawdown](#) - 100 most effective strategies to reduce emissions; [NASA Climate Kids: How to Help](#); and [U.S. Department of Energy – Climate Change](#)
- **Climate change inequities.** Climate change impacts are not felt equally by all communities or ecosystems. Share information on how climate change disproportionately impacts communities of color. Brainstorm actions and solutions to address the climate crisis locally, nationally, or globally. **Resources for secondary schools:** [How Climate Change Disproportionately Affects People of Color](#); [Racial Disparities and Climate Change](#); and [Climate Change and Social Inequality](#)
- **Climate change and air conditioning.** Students can explore how air conditioning impacts climate change. **Resources for high school students:** [Air conditioning is threatening our ability to tackle climate change. Here's what we need to do | World Economic Forum \(weforum.org\)](#); and [How to avoid the coming air conditioning crunch | MIT Technology Review](#)
- **Carbon footprint calculations.** Students can use an online calculator to assess their personal carbon footprints. They can write, draw, or present about what can be done to reduce individual and collective footprints. **Resources:** [International Student Carbon Footprint Challenge](#) – includes both basic and advanced calculators; and [Global Footprint Network](#) – a short ecological footprint calculator for younger students or when less time is available.
- **Cool School Challenge.** Students can participate in evidence-based science investigations to reduce school carbon footprints. Includes elementary and secondary school audit forms, and information on how schools can complete the Challenge in a suggested 40-day period.
- **Energy and wildlife connections.** Explore how conserving energy can help wildlife, then create a display or social media campaign to educate your school community. *Example:* Although hydropower is a renewable energy source, hydropower dams affect local watersheds as well as salmon and other wildlife dependent on salmon. Students can explore how energy conservation and alternative energy sources such as solar and wind can reduce dependence on hydropower. **Resources:** [Shadow of the Salmon curriculum](#) (middle school – grade 10); [Save Our Wild Salmon - Building Clean Energy / Fighting Climate Change](#); [WSC-Ready-for-Change-Climate-Resilience-Framework.pdf \(wildsalmoncenter.org\)](#); [Salmon School - Wild Salmon Center](#); [Why Protect Salmon - Wild Salmon Center](#); [Hydropower explained – U.S. Energy Information Administration](#)
- **Slogan or logo competition.** Hold a competition for student-created slogans or logos that encourage energy conservation practices. Post slogans or designs in the school, on websites, and on social media. Recognize the winners.
- **Student-created media.** Students can create posters, videos, or social media posts about energy conservation actions at school or home, and could include information about how energy conservation reduces greenhouse gas emissions that impact climate change.

- **Careers.** Students can research careers related to energy conservation and climate change, then share the information with other students. Invite speakers who work in these fields.
Resources: Ask your district resource conservation manager to present and answer questions; [5 of the fastest growing jobs in clean energy](#); and [High School Internships at Seattle City Light](#)
- **Energy use at your school.** Analyze your school’s energy use and costs, then share the data with your school community. This can be paired with education and outreach about energy sources and strategies. **Resources:** Tracking Energy Use on page 9 and the best practices on pages 7 – 10
- **Observe and report.** Students can observe practices in their school and compare them with the best practices on pages 7 - 10, and interview custodians or district staff to ask about the practices. Educate and remind students and staff about energy conservation practices. Report problems such as overheated classrooms to school or district maintenance staff. \ **Resource:** Pages 7 - 10 of this guide
- **Student advocacy.** Students can recommend energy conservation goals, policies, and practices they want to see at the school, school district, city, county, state, or national level. Students could partner with a community group focused on climate change and energy conservation. For school or district advocacy: After identifying and researching a school or district energy policy, practice, or equipment upgrade, students could present their recommendation(s) to the local school board. **Resources:** [Sierra Club Washington State Clean Schools campaign](#); [NW Energy Coalition](#) (local energy issues); [Washington State’s 2021 legislative session](#) (energy-related bills); [Washington Department of Ecology initiatives and programs](#); and best practices on pages 7 - 10
- **School district plan to reduce energy and greenhouse gas emissions.** Students can advocate for a written school district plan to reduce greenhouse gas emissions and strengthen sustainable practices and policies. After researching model district plans, students could present their recommendations to their local school board. **Resources:** Washington State [Clean Buildings Performance Standards](#) - this law sets standards which will impact schools; [Berkeley Public School Sustainability Plan](#) - this model district plan includes student learning, energy, water, transportation, green building, health and wellness, waste reduction, recycling, and composting; and [Student Advisory Council on Climate Change](#) – an example from Spokane School District
- **Transportation.** Reduce greenhouse gas emissions by walking, biking, using yellow school bus service, using public transportation, and carpooling. For school buses and cars at pick-up and drop-off times: Promote and enforce a no-idling policy.
Resources: King County Green Schools Program [Transportation – Best Practices for Schools](#); and [EPA’s Guide to Global Climate Change: Travel Green](#)
- **Vending machines and energy.** Students could explore energy reductions and cost savings when schools/districts either eliminate vending machines or work with vending machine companies to permanently turn off display lights, remove excess lights, install LED lights, use vending misers, specify Energy Star machines, or specify machines with integrated motion detection. Students could present their research and advocate for eliminating machines or improving their energy-efficiency. **Resource:** [Vending misers – Facts and Issues](#)

Energy conservation signs

To request the stickers and signs listed below, email the King County Green Schools Program at GreenSchools@cplusc.com

- “Turn off the lights when leaving the room” [stickers](#) (also available in Spanish)
- “Turn off the lights when leaving the room” signs: [4 signs per page](#) or [6 signs per page](#)
- “Turn off Equipment when not in use at the end of each day” signs: [4 signs per page](#) or [6 signs per page](#)

Student and staff best practices at school

Buildings are the most rapidly growing source of greenhouse gas emissions in Washington state. Schools and districts use a significant amount of energy and money to light, heat, and air condition their buildings. Investing in building energy efficiency is a cost-effective way to significantly reduce greenhouse gas emissions.

Below are energy conservation best practices for students and staff to follow at school. *Some practices below may not apply to your school building, depending on the building’s age and type of equipment.*

- **Energy conservation patrol.** Organize a patrol to handle assigned classroom tasks such as turning off lights, projectors/smart boards, and computers, or making sure doors and windows are closed when heating or air conditioning is on. Each student can have a job title, such as Light Watcher. Encourage energy saving practices by leaving thank you notes for teachers who lead students to conserve energy. **Resource:** Green Schools Program [Energy Monitor Checklist](#) for classrooms; and best practices on pages 7 – 8

Lighting and plug loads can comprise 30% to 40% of a school’s energy use and costs. Students and staff can take the actions below to reduce school energy use from lighting and electrical equipment.

- **Turn off lights in unoccupied or partially occupied spaces.**
 - Although some rooms in your school may have automatic occupancy light sensors, there can be a delay between leaving a room empty and the lights automatically turning off, so you can save energy by turning off lights as you leave a room.
 - If lights have occupancy sensors, test if lights are timed appropriately: Leave a room unoccupied and time how long it takes for the lights to turn off. Report malfunctioning sensors to the district or appropriate school staff.
 - Identify areas that would benefit from occupancy sensors - and then request sensors.
 - Ask teachers and other staff to keep on only the lights above their desks when no students are in the room.
 - Ask custodians to reduce lighting, especially in gyms and multipurpose areas, while cleaning after school.
- **Use daylight instead of electric light.** In occupied spaces, open blinds when adequate outdoor light is available and then turn off some or all lights.
- **Use task lighting** such as desk or under counter lamps when possible instead of central lighting. Make sure lamps use high-efficiency LED lights.

- **Reduce energy use from computers, photocopier machines, smart boards, and other electronic equipment at the end of the day.** Ask your school or district about their policies and procedures for shutting off equipment or using energy-saving modes. If allowed, shut off equipment at the end of the day, post reminder signs next to equipment, and/or use software to shut down equipment. Turn off and unplug laptops or chrome books after charging.
Resource: See page 7 for signs provided by the Green Schools Program.
- **Make sure projectors and smart boards are on energy efficient modes,** if available.
- **Eliminate or restrict personal or supplemental space heaters, refrigerators, and other appliances in offices and classrooms.** Ask district or school administrators to establish this practice. Fewer appliances result in cost savings which could pay for teachers and other school expenses. (Space heaters also are a safety issue because they can cause fires.) A student team can run an educational campaign or create a pledge for staff to sign. Post the collected pledges to encourage support.
- **Automated controls for plug outlets.** Some newer buildings have plug outlets with automated controls to turn off power based on a schedule or motion detection. Ask if your school has these outlets and, if so, encourage occupants to use them correctly.

Heating, ventilation, and air conditioning (HVAC) can comprise 45% to 60% of a school's energy use and costs. Students and staff can take the actions below to reduce environmental and budget impacts of school HVAC systems.

- **Regularly encourage students and staff to dress appropriately for the season so they will be comfortable with approved temperature settings.** Encourage school staff to request their room heating setpoint be set to 68F (66F in gyms, multi-purpose rooms, lobbies, and hallways) and mechanical air conditioning setpoint to 75F in warmer months.
- **Keep heating and cooling vents and grills uncovered and free of items that could block them** such as papers, books, etc. This allows the HVAC system to run more efficiently.
- **Keep windows and doors closed when heating or air conditioning is on.** Make sure doors to outside are not left open longer than necessary. With your principal or district, discuss the removal of door hooks meant to prop doors fully open. If a door must be propped open, request that a small door stop be used instead of fully propping the door open.
- **Close window blinds/coverings at the end of the school day or in unoccupied spaces to keep heat in, and open window blinds/coverings during the day to let daylight in and reduce the need for heating.** Ask your district or school administrator if the safety and security needs of the building will allow this action.

Best practices for school buildings

Which best practices on pages 9 and 10 are followed in your school or district? Ask school administrators and custodians and/or your district resource conservation manager or district operations and maintenance staff. *Some best practices below may not apply to your school building, depending on the building's age and type of equipment.*

Share what you learn with your school community. Students in some schools have planned and led a Green School building tour to share all the green practices in place in their schools.

Students can advocate for new and improved practices by communicating with school administrators, district staff, or the school board. This can count as your education, outreach, or systems change activity or project for Level Two recognition.

Track energy use and costs: *Best practices for school buildings*

- **Monitor school energy use and costs regularly.** This practice will alert your school or district to energy-inefficient practices or billing problems.

Students can analyze the school's energy use - both electrical and natural gas energy - to help understand impacts of daily practices and school or district energy conservation strategies. Electrical use is tracked by cost and/or kilowatt hours (kWh), an energy unit showing how much power is used over time. Natural gas use is tracked by cost changes over time and by volume (cubic feet or meters) or the amount of heat the natural gas produces (British Thermal Units - BTUs or Therms).

School energy use and costs can influence school or district staff decisions about energy conservation policies, practices, and purchases of energy-efficient lights, appliances, or equipment.

To obtain school energy use data:

- **Public schools** - Ask your district resource conservation manager or operations and maintenance staff, or the Green Schools Program to connect you with district staff.
- **Private schools** - Ask your administrative or maintenance staff for utility bills.

Lighting and plug loads: *Best practices for school buildings*

- Use computer software to automatically shut off all computers at a specific time each day.
- Use timed power strips for charging stations to reduce energy use after charging computers.
- Install occupancy sensors for lighting in frequently used rooms.
- Use multiple switches to customize lights so rooms can use a mix of natural and indoor light.
- Schedule or program central lighting controls and verify schedules match occupancy.
- Borrow a light meter and take readings of light levels throughout the school to see if lighting can be reduced to more appropriate levels by using lower wattage bulbs or removing some bulbs. Consider reducing lighting which is only decorative and does not serve a practical purpose.
- Replace all incandescent and halogen lights with LED lights marked with the Energy Star label.
- Purchase only energy-efficient lighting and electronic equipment, such as Energy Star products.

- Keep lamps, light fixtures, ceilings, and other room surfaces clean to reflect light and reduce the amount of lighting needed.
- On school breaks and weekends, follow the shut-down procedures established by your district or school for lights and electronic equipment.
- Over the summer, store food in as few refrigeration/freezer units as possible and shut down unnecessary units. After the last day of school, empty and unplug refrigerators in Family and Consumer Science classrooms, *or* turn up the temperature a few degrees to save energy.
- To reduce vending machine energy use, either eliminate vending machines or work with vending machine companies to decrease machine energy use by permanently turning off display lights, removing excess lights, equipping them with LED lights, using vending misers to program energy use, or specifying Energy Star machines and machines with integrated motion detection.
- Make sure exterior lights are scheduled only where and when needed, and that controllers are working properly. If possible, turn off lights in the bus loop, covered play areas, and outer parking lots earlier than lights in other areas.

Heating, ventilation, air conditioning (HVAC):

Best practices for school buildings

- Do not heat or air condition unoccupied spaces. Schedule HVAC for occupied spaces only. Front offices, gyms, and multi-purpose rooms typically should have different HVAC schedules than classrooms.
- On school breaks and weekends, follow the HVAC shut-down procedures established by your school or district. Consider shorter HVAC schedules during conference weeks and before and after the school year begins, especially in gyms, kitchens, and multipurpose rooms.
- Set heating setpoints to 55F when the building is unoccupied for longer periods of time.
- If possible, consolidate after-hour activities and summer programs into common areas, adjacent classrooms, or one building wing, and then reduce lights and HVAC in unoccupied areas.
- Insulate hot water pipes. Upgrade weather stripping, caulking, insulation, glazing, or door and window hardware to reduce energy loss.
- Check mechanical equipment and perform cleaning and preventive maintenance (such as cleaning heating and refrigerator coils, changing filters, inspecting/calibrating a certain percentage of sensors each year, tuning boilers, and re-commissioning the HVAC system) according to the recommended schedule for the school's equipment.
- Close outside air dampers during night heating and building warm-up. (Dampers contribute to energy used for heating by reducing movement of excess outdoor air.)
- Invest in building automation systems (software and hardware to monitor and control building systems, including lighting and HVAC) or programmable smart thermostats. Smart thermostats especially work well in portable classrooms.
- When replacing HVAC systems, purchase the most energy-efficient equipment possible.
- Install solar panels after researching options and securing funding.

Green building resources

- Design, build, and renovate school buildings which use less energy and water, protect natural resources, and use non-toxic and sustainable building materials. **Resources:**
- [King County Green Schools Best Practices Guide for Green Buildings.](#)
- Become an [EPA Energy Star](#) certified school and share results with your school community.
- Build or renovate school building(s) to meet a green building standard. **Resources:** [Washington Sustainable Schools Protocol \(WSSP\)](#); [Green Building Initiation – Green Globes certification](#); [Living Building Challenge](#); and [U.S. Green Building Council – LEED certification](#)

Assistance from school energy providers

Learn about assistance, rebates, and incentives offered by the region’s two major energy providers.

Puget Sound Energy (PSE) – natural gas and electrical energy

Tools and resources	
PSE service area map	See if your school receives PSE natural gas or electrical energy.
Energy conservation assistance and incentives	Request project-specific advice: Call 1-800-562-1482 or email csem@pse.com .

Seattle City Light (SCL) – electrical energy

Tools and resources	
Energy conservation assistance	Select “Rebates and Incentives” to learn about SCL financial incentives for energy-efficient upgrades.
Contact an energy advisor	Request help from SCL energy advisors.
Customer information guide	See page 8 for a map of SCL’s service area which includes Burien, Lake Forest Park, Normandy Park, Renton, SeaTac, Seattle, Shoreline, Tukwila, and unincorporated King County.
Large Commercial and Industrial Business Solutions - City Light seattle.gov	Districts can learn about retrofit incentives, deep retrofit pay-for-performance, instant discount, and simple rebates.
High School Internships at Seattle City Light	High school students may be interested in SCL paid summer internships.