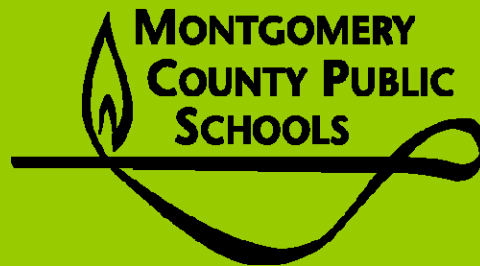


Resource Conservation Strategies for  
Montgomery County Public Schools

**SERT**

**HANDBOOK**



## **SERT Mission Statement**

The School Energy and Recycling Team (SERT) provides school-based staff, teachers, and students with ownership, responsibility, and rewards for managing energy consumption and comprehensive recycling programs. School-based personnel will be motivated to continually seek ways to conserve energy and reduce costs by eliminating energy and water waste and maintaining an active recycling program to ensure that each school maintains a healthy and safe environment for learning.

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# SERT Handbook

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##### School Energy Shut Down Checklist (Winter Break)

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##### ERT Work Request

<http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/pdf/ERTWorkRequestInfo.pdf>

##### MCPS Recycling

<http://www.montgomeryschoolsmd.org/departments/recycling>;

<http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/recycling.html>

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## ABOUT SERT

### Introduction

"Energy may be the most important environmental issue of our time. If you think about nearly any other environmental issue—air or water quality, land use, transportation, global climate changes, or solid waste management, to name some examples—you will find that it is related to the issue of energy. Energy affects our lives everyday. It keeps us warm in the winter and cool in the summer, affords us the freedom to travel to far away places, and keeps our food fresh and safe to eat. Energy is not just an environmental issue; it is a quality of life issue, too."

Reprinted with permission from Project Learning Tree, Energy & Society Energy Education Pre K-8 Activity Guide. Copyright, 2002, American Forest Foundation

This guide book is for students, staff, parents, and community—everyone supporting and participating in Montgomery County Public Schools (MCPS) School Energy and Recycling Team (SERT) program. Our goal is to maintain a healthy and productive learning environment for faculty, students, and staff, while reducing energy, water, and other resource use along with actively participating in a comprehensive recycling program.

All MCPS schools are required to participate in SERT and to file a complete, executed, SERT Action Plan in September of every year (Form 201-10). Each school is challenged to save at least 5% each year in electricity over the set baseline and to increase its recycling rates.

A school's level of student participation and activity will have a direct impact on the amount of energy savings it achieves. Active teams have proven to increase recycling rates by involving students in the program. Energy conservation and recycling in schools is not the sole responsibility of the building service staff. Each member of the school can play an important role. Successful SERT schools develop a "magic triangle"—active participation of the (1) school administration (2) school building service staff and (3) SERT leader and students. Each of us must look at our own energy consumption habits and ask, "Is this a wise use of these resources?"

It is our sincere hope that your school's participation with SERT will result in a positive and rewarding learning experience for all involved.

## SERT Water and Energy Conservation Program Outline

Fiscal responsibility and resource stewardship go hand in hand in ensuring that the MCPS operating budget stretches to cover all essential educational needs. Collectively, we can reduce energy waste and preserve essential educational priorities.

### Participation in SERT is mandatory for all Montgomery County Public Schools

All schools must complete an annual SERT Action Plan and should achieve at least a **5% reduction in total energy use over the school year**. The following outlines the program and the incentives the SERT program offers to help schools achieve this goal:

A new and current SERT Action Plan with designated staff must be submitted by the last Friday in September each year. This deadline correlates with the mandated County Recycling Plan deadline.

Principals' support of the SERT team is essential to establish schoolwide awareness, promote environmental stewardship, and ensure proper use of awards.

SERT energy facilitators are available to assist all schools in their SERT programs. The SERT energy facilitators support the SERT team's efforts in energy conservation and recycling and provide hands-on assistance with in-school programs and initiatives.

### Annual SERT Energy Performance Awards and Great Energy Management (GEM)

- Quarterly SERT awards are granted to the top-performing schools that demonstrate savings against their established baseline data. This award goes to the school; however, in the summer quarter (June to August), the award is directly credited to the building service supply account for each winning school.
- Energy-performance awards will be withheld from schools that have a recycling grade of D or lower. Support from a recycling specialist will be made available for schools that are unsuccessful at recycling. Each school that does not achieve a passing grade will be regarded after significant efforts are made to improve the effort, with support from the SERT program.
- In consideration of schools that do not have a pre-established baseline, SERT will grant quarterly awards to select schools demonstrating **Great Energy Management (GEM)** behavior. GEM awards are based on observed conservation practices and data collected by the SERT Energy Facilitators during unannounced school visits.

### Annual SERT Recycling Rewards Program

- Annual recycling rewards are granted to the top performing schools that maintain a thirty-six percent (36%) recycling rate. This award is given to the school; however, one third of the award is directly credited to the building service supply account for each winning school.
- Additional annual recycling rewards are granted to schools with the top rate increases each year. These awards are distributed as stated above.

## SERT WEBSITE

[www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/sert.shtm](http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/sert.shtm)

The SERT program maintains a comprehensive website ([www.greenschoolsfocus.org](http://www.greenschoolsfocus.org)) that provides schools with up-to-date news, educational opportunities, suggestions for field trips, activity ideas, links to fun energy and recycling websites, and SERT activity packets. On the website, schools can access their quarterly energy consumption information under Energy Data and their recycling rates under Recycling.

## CLASSROOM MATERIALS

Every year, the SERT program provides assistance for teachers at elementary, middle, and high school levels who want to integrate energy and water-related concepts and topics into their on-going classroom activities. Our objective is to help students understand the implications of energy use and savings, as well as how the SERT program relates to larger issues of global environment and energy security. SERT provides centralized training opportunities, classroom visits, elementary energy assemblies, student contests, onsite assistance with tools to analyze energy use, and recycling support.

## THE SERT TEAM

The one essential common factor for successful SERT schools is that they have developed a coordinated team effort, also known as "SERT's Magic Triangle."

SERT works when there is cooperation among the administrative and building service staff, as well as the faculty and students. It can be frustrating when those trying to save energy and recycle feel that there is no support or interest. So, here are the first steps:



### Assemble a dedicated team

Team members do not have to be engineers; they just need to be willing to contribute. A team should include students who will have unique approaches for involving other students and staff members. A team should also include a member of the building service staff and at least one member of the teaching staff.

### Give the SERT leader authority

SERT is not about fancy gadgets or magic devices. It is about influencing people's behavior and encouraging them to participate in conservation and recycling efforts. Having the principal's visible and

consistent support of energy and recycling issues can go a long way in encouraging people to change their habits. Support from the administration promotes active participation in your school's conservation efforts.

### **Produce a team-written SERT action plan**

Lee Iaccoca once said, "The discipline of writing something down is the first step in making it happen. Give ideas life by committing them to a written plan." Brainstorm to find new and innovative ideas that will work for your school and fit your needs. Develop the ideas into priorities for immediate action.

### **Establish reasonable deadlines**

If you want to get it done, plan to do it.

### **Meet monthly to evaluate performance**

Follow up on activities. Make them happen.

## **ACTIVITIES FOR STUDENT SERT TEAMS**

Schools participating in the SERT program have many activities to choose from and can create their own ideas to increase savings and recycling rates. Activities for SERT teams can be found on the SERT website, <http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/sert.shtm>. Activity packets, energy games, electrical and recycling audits, brief constructed responses (BCRs), and student work regarding energy conservation and recycling should be sent in to the SERT program office for inclusion in our "active" school files. These files demonstrate a school's activity level for several awards that are granted annually.

Most schools involved in SERT have some sort of building-management program in place. This program may include removing unnecessary lighting, keeping lights and computers turned off when not in use, establishing locations for recycling stations, and keeping their energy-management (EMS) calendar current. In addition, some schools pursue a SERT program that includes students who have a creative approach to promoting energy and recycling awareness and develop dynamic campaigns to spread the word on energy savings and recycling rates.

### **Establish recycling rangers, computer captains, and energy emissaries**

SERT teams that assign recycling and energy monitors in each classroom provide leadership opportunities for students. Modeling behavior for others to emulate is a great way to start a culture of conservation in your school. Rotating these positions so all students can participate will help achieve the energy savings and recycling-rate goals as well as provide students with a sense of accomplishment.

### **Create team inspiration through Green Ribbons**



The Student Government Association liaison at Damascus Elementary School charged the SERT team with the responsibility of educating fellow students about energy conservation. In addition to putting up posters, installing light switch covers, and creating labels for

computers, they implemented a new program called the “Green Ribbon Award.” This program allowed students to rate their classrooms weekly on how well each room was conserving energy and resources. Once they were rated, the classes became eligible for a green ribbon and a leaf (with the class’s name on it), to be added to the green ribbon tree bulletin board in their school’s main hall. The class with the most ribbons at the end of each quarter received a plant to decorate their room or plant outside during spring.

### Measure light levels and delamping where possible

At Rock Creek Valley Elementary School, students worked with building service staff to take measurements of actual light levels in hallways and classrooms. They found much of the school was over lit. Lamps were removed and light levels, while lower, were still above the MCPS standard. Most important, staff and students didn’t notice any differences after delamping. The school saved 5 percent in electricity consumption and was awarded \$1,000, in the second and third quarters, for great conservation behaviors.

### Find the win-win solution

The assistant principal at Redland Middle School used the energy data and SERT program to develop her black belt project for Six-Sigma. Having the support and direction of the administration at Redland helped them to increase their savings. By outlining an energy-conservation plan, developing strategies for students and staff, monitoring small appliances, and celebrating their accomplishments, this approach reduced energy use at Redland Middle School.

### Listen to your students and let them lead



At Page Elementary School, Green Team students and staff hold bimonthly lunch meetings with their principal. During these meetings, they discuss strategies on how to conserve energy and reduce energy waste. Each meeting has resulted in new and innovative ideas that led their school to dramatically decrease its energy usage. At the end of the school year, the students were very proud of their Green Team and their accomplishments.

### Let students create an original message

S. Christa McAuliffe Elementary School has an effective way to remind students and staff to turn off lights when not needed. Student-created designs are laminated and placed in each classroom. Each reminder is unique and students proudly show off their sign at Parents Night. The fact that each art class becomes invested in the message of school conservation is an added bonus.

### Peer teaching and Student Service Learning hours

High school and middle school students can work with feeder elementary schools to assist younger students with their “Watt’s Up? Power to Save” annual poster contests. Elementary and middle schools are eligible to enter this poster contest where students are charged with creating a peer-to-peer message on energy conservation



through flat format (poster). Secondary school students can also volunteer at local elementary schools to assist the SERT leader in running an after-school SERT club.

### Use data to track SERT success

The Glenallan Elementary School G.E.T.T.E.R.S Club consists of fourth and fifth grade students and staff who wanted to make a difference at their school. By identifying and correcting wasteful energy practices, G.E.T.T.E.R.S saved 22 percent in electricity use over the 2006–2007 school year. A data chart was prominently displayed in the school that tracked the conservation progress. This increased involvement for all students and staff and helped school visitors and parents understand the program.

### Compile an energy cheat sheet for each room

Every piece of equipment we buy today comes with a manual. In much the same way, every room in a building is a little different and needs to be operated in a specific way to make it most energy efficient. You can create an energy cheat sheet for your classroom that instructs the user in the care of the equipment in the room at different times of the day and year. Some checklist items to include are as follows:

- Do the blinds should be up or down, and when?
- When should the task light should be used by the teacher after class?
- What should be shut off when the room is empty?

This checklist should be hanging close to the door so that it is clearly visible and accessible to all users. Many schools are used by the community after school hours. A schedule should be located in the schools' Main Office. Make sure that whoever uses the room after the class is familiar with your manual and will promote the habit of turning off lights and equipment when people leave at night.

## RECOGNIZE EFFORT AND PROMOTE YOUR PROGRAM

The SERT program is like any good habit. You have to keep up your effort every day. Keeping people motivated is very important to the success of the program! Recognize and reward individual and team effort with certificates, awards, and greater responsibilities.

SERT teams have used everything from tie-dyed t-shirts, hats, ribbons, buttons, and aprons to identify the students in the student lead SERT patrols. Contact the SERT program office to learn about other ways to promote your team's conservation and recycling efforts or to receive certificates of appreciation for special recognition at your school.



Promote your program within the school with morning announcements, newsletter articles, and flyers. Ask for support and assistance from your PTSA and community user groups. Their energy use and recycling efforts will affect the entire school.

Use the SERT newsletter to promote your projects. Call in your stories and schedule a time for photographs. If your students are featured in an article, make sure you get extra copies to pass out to parents!



Celebrating the accomplishments of our students!

Delivery of Watt's Up? Winnings to Westbrook Elementary School

## FREQUENTLY ASKED QUESTIONS

### General

**Q. How are SERT awards determined?**

SERT awards will be based on one of the following two performance criteria: (1) verifiable energy savings and (2) observed energy-efficient behaviors. The energy savings are verified through energy bill analysis. GEM action is verified by your school's assigned SERT energy facilitator or other SERT Program team members as part of site visits. These visits may take place during school hours, after school, or in the evening. The SERT team should keep meeting notes or minutes to fax or Pony into the SERT Program office for your active school file. Schools with a D or less in recycling are not eligible for third quarter energy performance awards. A recycling specialist will be made available to schools that need assistance in their recycling efforts.

**Q. What can I do with my awards?**

The SERT Program office recommends that award monies be spent on materials and services that further the environmental goals of the program. Stipends for eligible employees attending training are appropriate uses of award monies, as are t-shirts or other team-building identification for students. SERT-awarded monies can also be used for recycling supplies. For more ideas on how to spend your SERT money, please contact your SERT energy facilitator or visit our website at [www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/ser.htm](http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/ser.htm).


**Q. What other assistance is available to help my school implement additional ideas and efforts?**

The SERT program provides trainings, open to all MCPS schools at the beginning of each school year to help support their SERT team. The trainings are conducted by the SERT energy facilitators. Throughout the year, the SERT energy facilitators will visit your school to provide advice and hands-on assistance with energy conservation and recycling strategies. The SERT program tracks the energy consumption of your school and relays that information periodically to principals, SERT leaders, and community superintendents. In addition, MCPS offices of Energy Management and Division of Maintenance will address temperature issues relating to a building's heating and cooling both during and after school hours.



- Q. **What can schools do to conserve resources when outside groups are also using the building?**  
With the growing needs from our communities, our schools are operating long into the evenings and weekends year round. Before- and after-school programs, adult night education courses, community meetings, and weekend activities are just a few. With additional usage of the buildings, there also comes an increase in energy and water consumption. This can be an opportunity to build wider awareness of the school's efforts to conserve resources and save taxpayer dollars. To spread the word, SERT teams should post special notices in areas most used by those groups. Organize a meeting with your local community cluster to discuss strategies to promote recycling, and conserve energy and water during after-school hours. **Let community users know that their use of excessive lights or practices of leaving outside doors open when the building is being heated or cooled has a direct impact on your school's energy consumption.** You'll find more people are willing to cooperate if they are made aware of your goals. Provide adequate recycling containers in areas where community users gather. Consistent and clear communication is one of the main keys to a successful SERT program.

## Heating and Cooling

- Q. **Who controls the operating schedules for heating and cooling in my school?**  
There are two basic methods to control the heating and cooling in MCPS schools. The most common method is with computer-controlled energy management systems. A calendar of your school's monthly activity (normal school hours, plus evening community use) is used to determine the operating schedules for the heating and cooling systems. If there are any changes to the schedule, Energy Management Systems (EMS) must be contacted to make the appropriate changes. Some schools are not hooked up to the energy management system. In those cases, the building service manager has direct control of the heating and cooling equipment. Either way, the operating periods of the heating and cooling systems are determined within the school, not by SERT or an outside office. Reduction of after-hours use of the building and consolidated after-school use into one heating/cooling zone supports energy conservation.
- 
- Q. **What are the correct temperature settings for heating and cooling?**  
The standard temperature setting during the heating season is 70°F., the temperature setting for the cooling season is 76°F. Everyone has a different comfort level at different temperatures, especially at different levels of relative humidity. How comfortable you feel depends on your physical ability to adjust and how appropriately you are dressed for each season. Layering clothes keeps you more flexible.
- Q. **What should I do if I see examples of waste?**  
If it is as simple as turning off the lights, just do it! Be proactive and help everyone by modeling energy-aware behavior. Use these opportunities to educate others, when appropriate.
- Q. **Are electric space heaters allowed in the school?**  
Electric space heaters are against MCPS policy. In addition to having high energy costs, these units are a fire and safety hazard. Only heaters installed by the Division of Maintenance for emergency use will be permitted; others will be confiscated. For alternatives, contact your SERT energy facilitator, 240-314-1090.

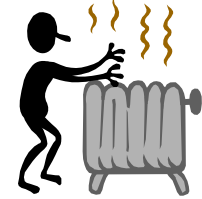
**Q. What can I do if the room is too cold/hot?**

If your room temperature is uncomfortable, measure the actual temperature and then call the building service manager. If necessary, have the thermostat setting checked. Also, check to make sure the unit ventilator is not blocked. The area on top with the vents, as well as the bottom of the unit, needs to be clear. If either top or bottom is blocked, then it will waste energy and leave you more uncomfortable. Space heaters are not allowed in the school building and can corrupt the thermostat readings. Collect information on actual temperature and thermostat readings before you contact Energy Management Systems. Opening windows can exacerbate the problem and should be avoided, unless absolutely necessary.

## Lighting

**Q. In our school, what is the biggest consumer of energy?**

The biggest consumer of energy is heating ventilation and cooling, followed by plug loads, and then lighting. The heating/cooling system stays balanced by keeping doors and windows closed. Plug loads, like personal refrigerators, computers and printers, and lighting, are the loads that can be easily controlled by shutting things off.



**Q. Does it actually cost more to turn the fluorescent lights off for a minute, than to leave them on?**

No! Modern fluorescent lamps are "rapid start" or "instant start." Once you turn them off, you will start saving energy immediately. There is no appreciable increase in energy use to start them again. So the next time you say, "I'll be back in a minute," and then return 20 minutes later, consider how much you could have saved by turning off your lights!

**Q. Will I really save energy if I remove a light tube from a fluorescent fixture?**

Yes. The electrical current to remaining tubes increases marginally (a watt per tube), but electric consumption is reduced by 40 watts per tube on the older T-12 system, and 25 watts on the newer T-8 lights, for each one removed. Call your SERT facilitator to borrow light meters to check areas that you feel may be overlit.

**Q. Will I burn out the ballast if I take a tube out of a fluorescent light fixture?**

Your ballasts will NOT burn out by removing tubes. A ballast is an electrical component used in fluorescent lighting systems. The manufacturers' design engineers state that heat from electrical current degrades the ballast. With less current, there is less heat, thus less wear. Ballasts do fail for a variety of reasons, but not because a tube was removed.

**Q. Why do I see some teachers working in their rooms with just a desk lamp on?**

These teachers are participating in energy-saving strategies recommended through their SERT team. These lamps are used when students are not in the classroom. Task lamps provide enough illumination on a desk to take care of daily administrative duties and paperwork without lighting the entire room when students are not present. The task lamps are easy to mount on a desk or work station and are a great energy-saving alternative for those who need light at their desk, but not the entire classroom. We encourage task lamp usage during periods when students are not in the classroom (lunch, rotation, after school, etc.) To calculate your savings, multiply the number of light fixtures in your



room by the number of lights in the fixture and then multiply by the wattage of the bulbs. Compare this number with the task lamp, which uses 23 watts of energy.

## Computers

### Q. Will I kill my computer or software if I turn off the computer?



Always follow the procedures to exit your software programs before turning off your computer. The general rule of thumb for the components is to treat your computer as you would your television. Why leave a TV on when no one is watching? If you are having problems with your computer, it is most likely due to a hardware or software glitch, not anything to do with turning the computer off. The most energy is used by your monitor, so if you are really just going to be gone for a short time, turn the monitor off and leave the computer on. If you are gone longer than 5 minutes, turn it all off. These days, restarting your computer often is more beneficial than harmful. Remember the most frequent computer fix when you ask IT staff —“Did you restart it?”

### Q. How much energy does a screensaver save?

None! The screen savers prevent the monitor screen from burning in an image displayed over a long period of time. But that does not save energy. Sleep programs, which darken the screen, actually do save energy and should be enabled on all computers so equipped. The most energy is used by your monitor, so if you are really just going to be gone for a short time, turn the monitor off and leave the computer on.

## Recycling

### Q. How do I order new bins?

Contact your in-school SERT/recycling coordinator who will communicate with your building service manager who can order the bins through the Maximo work order system.

### Q. Where can I find out what is acceptable and not acceptable for recycling, to avoid contamination?

For a list of what is acceptable and not acceptable to recycle at MCPS, go to <http://www.montgomeryschoolsmd.org/departments/recycling/accept-nonaccept.htm>

### Q. What do I do with recycling material that is contaminated?

If you find a recycling bin with food or spilled liquids (cans, milk, etc.), please place this recycling material in the trash. To avoid contamination and increase your school's recycling rate, please make sure that there is a trash receptacle next to all recycling bins. This gives our building occupants a means to properly dispose of recycling and trash. To reduce contamination, consider using restrictive lids for recycling bins (available through Maximo-Grounds)

### Q. How do I access my school's recycling data?

Please visit the recycling website to access your recycling data [www.montgomeryschoolsmd.org/departments/facilities/recycling](http://www.montgomeryschoolsmd.org/departments/facilities/recycling)

**Q. How is my percentage figured out?**

As recyclable paper and cardboard are picked up at each school they are weighed. Bottles and cans are scientifically estimated or weighed at each school.

The school's trash weight is calculated based on the school population, with an allowance for recycled materials. A calculation is used to determine percentages based on these two weights.

**Q. What is the difference between the letter grade we receive and the recycling percentage?**

Letter grade is determined by a county inspector who comes to your school to conduct a site visit. Maintaining your recycling program by providing recycling bins next to every trash can, avoiding contamination of paper, posting adequate signage, encouraging active participation in the program, etc., will improve your grade. Keep up the good work and ask for help from our office to help improve your grade.

**Q. If our school receives a failing grade what should I do?**

Rest assured—help is on the way. Please contact [recycling@mcpsmd.org](mailto:recycling@mcpsmd.org) to ask for assistance. Once you have been identified as a Recycling PLUS school the recycling office will provide your school with specialized assistance in raising your grade. Remember that the third quarter SERT energy performance awards are tied directly to the recycling grade. If your school receives a D or lower in recycling, this energy performance award will be withheld. We will make every effort to help raise your grade so your school will receive any awards due. Please try to avoid failing grades by encouraging staff and students to recycle. Ordering bins to support your school's efforts is the first step in promoting and succeeding in your recycling efforts. Don't forget to include students, staff, and leadership in the recycling program.

**Q. Who do I contact for answers to questions about recycling?**

Please e-mail your questions to [recycling@mcpsmd.org](mailto:recycling@mcpsmd.org). Several staff members have access to this box and will direct your question to the appropriate member of our team to help you.

**Q. If a liquid beverage is not fully consumed what should my students and staff do with the remaining liquid?**

Our new slogan is "Drink and Drop." One way to help keep liquids out of the trash is to provide a bucket next to the new milk containers in the cafeteria, to encourage students to completely empty their containers before recycling.

Four percent of our trash (more than 450 tons a year) is liquid. We can save the school system unnecessary costs in trash disposal by consuming the liquids or keeping them out of the trash.

- Q. What should I do if I suspect my recyclables are not being recycled?**  
The first step is to discuss your particular situation with your in-school recycling coordinator and building service manager. If your problems cannot be resolved within the school community, please contact the recycling office at [recycling@mcpsmd.org](mailto:recycling@mcpsmd.org).
- Q. What should I focus my efforts on in recycling?**  
Fifteen percent of our trash is recyclable paper. All school occupants are part of the recycling program. Encourage 100 percent of your school community to participate 100 percent of the time in recycling 100 percent of their paper.
- Q. Why do we use Styrofoam? Do we recycle Styrofoam?**  
Currently, only Styrofoam products are provided by our vendors. Unfortunately, there is no local facility for recycling Styrofoam. Styrofoam takes up a lot of space but is very light, so it is not economical to transfer it to the existing recycling facilities in Georgia, Florida, and Massachusetts.
- Q. My school is doing a great job and I want to share our strategies. How do I let others know about what we are doing?**  
Please send an e-mail to the **SERT\_Info** folder, which is a public conference folder that all schools can access. Visit this folder through public folders (conferences, departments, facilities) to learn about what others are doing and for the latest information on recycling initiatives. We publish some of these great strategies on our website and submit them to the Bulletin.

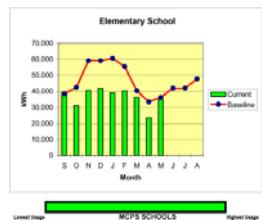
Please submit your questions to [recycling@mcpsmd.org](mailto:recycling@mcpsmd.org). We may publish your questions in future Q&A documents.

## SERT School Data CHARTS

The SERT program office posts each school's energy-use data on our website quarterly ([www.greenschoolsfocus.org](http://www.greenschoolsfocus.org)). Follow the link on the side navigation bar on the main page to Energy Data ([www.mcps.k12.md.us/departments/facilities/greenschoolsfocus/data.shtm](http://www.mcps.k12.md.us/departments/facilities/greenschoolsfocus/data.shtm)). The data is available for each school. Below you will find a sample Energy Chart.

**Elementary School**  
Electrical Consumption (kWh)  
FY06 School Year (2005-2006) vs. Baseline Year

Month	Current	Baseline	% Change	Wh/Std Pupil	% Change	Wh/Std Pupil
October 05	35,363	35,520	-0%	39,300		
October 06	31,063	42,480	-27%	70,440		
November 05	40,444	35,190	+14%	110,950	baseline	baseline
November 06	41,985	55,100	-24%	152,700		
December 05	38,120	60,610	-37%	181,600		
December 06	40,325	55,400	-27%	232,200	baseline	baseline
January 05	35,325	40,440	-13%	268,400		
April 06	25,760	53,480	-51%	282,300		
May 06	34,920	30,240	+15%	327,240	baseline	baseline
June 05	16	41,910				
July 05	0	41,910				
August 05	0	47,760				
<b>Total FY06</b>	<b>337,240</b>	<b>557,192</b>	<b>-41%</b>	<b>327,240</b>	<b>-41%</b>	<b>#####</b>



Recycling data can be found on the recycling website.

[www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/recycling](http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/recycling)

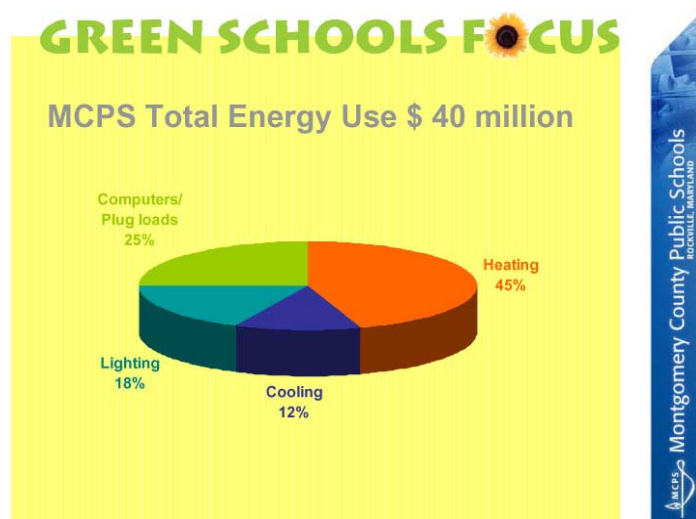
## Lighting Strategies



The biggest consumer of energy in MCPS buildings is heating, followed by computers and plug loads, lighting, and then cooling. Energy consumed by lighting is the easiest for us to modify, without any major expense. First, we have direct control at the switch. We can use the switches to control banks of lights in classrooms, halls, and so on.

Second, we can control how long the lights will operate.

Third, we can simply remove selected lights from the fixtures to control the amount of light in an area. How far you decide to modify your lighting system depends on your school's particular lighting system and conditions.



### Turn off the lights, turn on the savings

Turning off the switch is the easiest saver. The potential savings from turning off the lights is very high, while the inconvenience is really very small. The entire school can help with this action. Consider turning off lights in hallways that have large window areas, the bank of lights in classrooms along the windows, and school entry areas, where there is a lot of natural light.

### SERT Patrols

Patrols work very well with elementary school students. It is easy, action oriented, and the children have a lot of fun. Under the direction of a teacher and armed with SERT elementary patrol activity packets, the students check for unoccupied rooms where the lights are left on. They leave tickets to remind classmates, teachers, and staff to turn off the lights and equipment when they leave the room. Some energy patrols leave a happy face recognition ticket where they find the lights turned off. There is a classroom checklist and a certificate that can be used to celebrate consistent energy-aware behavior. Students can also check computer monitors and other equipment left on when not needed.

Implement a daily check to turn off unneeded lights. It is a good idea to schedule a light patrol before lunch and after school and to include the portable classrooms. Visit our website and find Elementary Patrols for a turn-key packet with a checklist, certificates, and reminders.

If you need help in starting a student SERT patrol, check our website or call our office for assistance 240-314-1090.

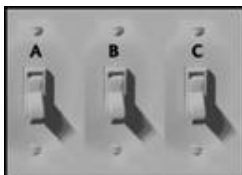
### Torchiere Lighting in Computer Labs

The SERT patrol students at Oak View Elementary School have transformed their computer lab into an energy-efficient model classroom. They agreed to turn off the overhead lights and turn on 10 torchiere lamps provided to them by their SERT energy facilitator. This energy-saving strategy was developed by Kevin Smith, a retired teacher at John T. Baker Middle School, and is being used throughout the system in school computer labs. Contact your SERT energy facilitator to analyze your school's computer labs for torchiere use. These lights provide ambient light that eliminates computer screen glare and reduces the overall light level to a computer room standard. These fixtures are provided free of charge to participating schools, along with a compact fluorescent bulb, through the SERT program office (while supplies last). The critical component in this energy-saving equation is your commitment to turning off the overhead lighting when using the lab.



### Switch to Habits that Save—Use Multiple Switches Effectively

Wherever possible, use the area's light switches to control the banks of lights that are being used. Experiment with the switches to see how they control the lights. Select the area that is being used and turn on the lights for that specific area. Why light up the back wall when everyone is facing forward? You can use this simple but effective technique in the all-purpose room, hallways, and even classrooms. All too often, we turn on all the lights in the room out of habit, not out of need. Try to avoid running banks of lights next to windows. Often there is adequate natural light to get the job done.



### Delay the Costs—Keep it Off Until Needed

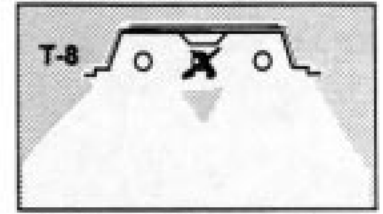
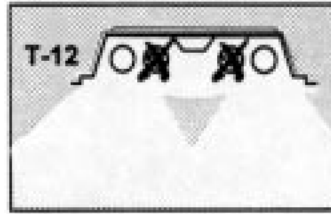
In the old days when energy was cheap, we would enter an empty building and immediately turn on all the lights. At 6 a.m., everything was on and ready to go. A more efficient habit is to delay turning on the lights in vacant parts of the building until people arrive. You may be able to save an hour or two of lighting use every day, without inconveniencing anyone.

### De-lamping

There are one to four individual fluorescent lamps in most of our classroom light fixtures. Depending on the types, you can remove some of the lamps while keeping the others on. Which pair to take out simply depends on which appears best to you. On the newer, skinnier lamps (T-8), the manufacturer recommends no more than one lamp be removed from the fixture. Of course, you can also remove all the lamps in a fixture if the light is not needed. Have an electrician disconnect the ballast if you are sure the light will not be needed.

## Rules for De-lamping

- Do not compromise health, safety, or security.
- Do not take lamps out of new fixtures under warranty.
- Do consider people's needs.
- With T8 systems, do not remove more than one lamp per fixture.
- Keep minimum light levels.



## Where would you de-lamp a light fixture?

De-lamping is possible anywhere there is a fluorescent light fixture above an area that is not being used for active reading and writing, or in areas where there is more light than needed. This could include the following areas:

### Classrooms

- especially along windows;
- around doors, corners, and coatrooms;
- over computers, televisions, and equipment; and
- over play areas.
- desk surfaces for reading should have 30-50 foot-candles

### Hallways/Stairways

- around windows and skylights
- corridors off the main hall
- hallways should have 10-20 foot candles (lumens)

Light meters are available to loan to SERT teams from the SERT program office. Call us for more details.

RECOMMENDED FOOTCANDLE (FC) LEVELS FOR VOLUNTARY SERT DE-LAMPING PROJECTS	
Corridor and Stairways	10 -20 fc
<ul style="list-style-type: none"> <li>▪ As low as 10fc – for high-reflectivity flooring/walls (white or pastel)</li> <li>▪ Up to 20 fc for dark-colored flooring</li> </ul>	
Conference Rooms	30 fc at table height
Reception Areas	20 fc (avg. ambient) 50 fc (on task surface/desk)
Classrooms	30 fc (reading/ writing)
Art class	75 fc (preferably natural lighting)
Computer labs	15 fc
Restrooms	15 fc
Gyms	30 fc
Cafeteria (seating area)	30 fc
Cafeteria (food prep area)	75 fc

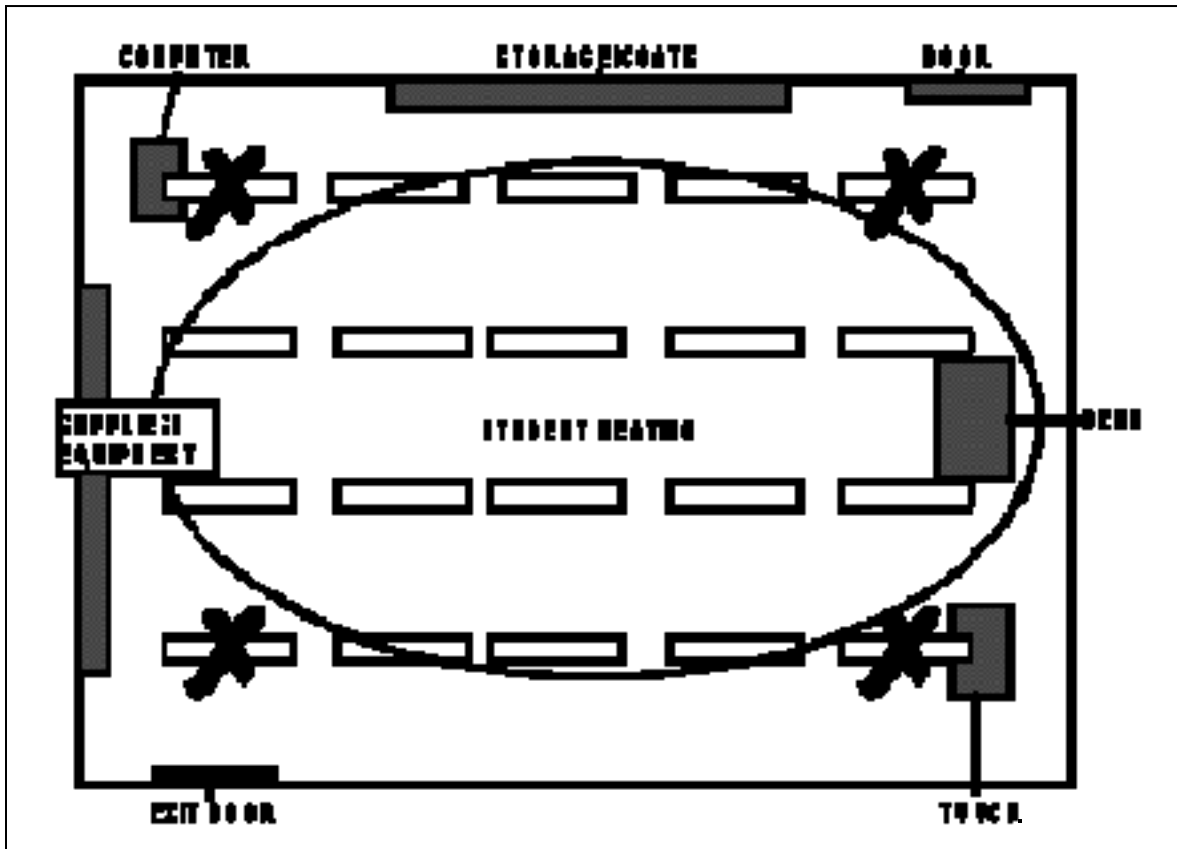
## Customize Your Classroom

When a lighting system is designed, most of the time the entire floor area is covered end to end with an equal amount of light. When we customize the lighting, the idea is to put light where it is needed and de-lamp where light is not needed.

There are no standard rules for customizing classroom lighting. Flexibility is the key. Each teacher will set up the classroom to meet his/her style and methods. Furthermore, each teacher will need a different level of lighting for comfortable vision. Customizing works best when the teacher and the building service manager work together to find the best solution.

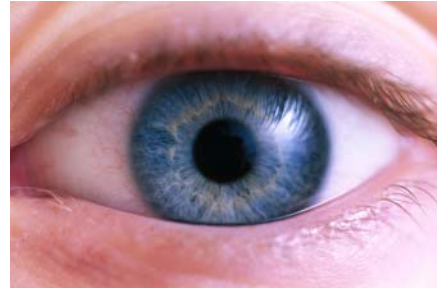
One building service manager came up with the idea of mounting cardboard on a pole in order to block out the light from a light fixture. That way he could go around the classroom with the teacher and select specific fixtures to de-lamp. The teacher could see how the classroom would look without any guesswork.

As shown in the example room, you can easily de-lamp over doors, computers, TV/VCR, and storage areas. Keep the lights over the students' study areas, where they will be reading and writing. Here, you want about 30 footcandles. If conditions change, the lamps can easily be replaced by in-house staff; this is a benefit of de-lamping.



## Eye to Eye... and After Class

Young healthy eyes are able to adjust to a wide range of light levels without difficulty. As people age, their eyes become less flexible with varying levels of light and detailed work becomes harder. Keep this in mind as you ask teachers to de-lamp. What may be appropriate for one person may be unsuitable for another. Consider task lights with compact fluorescent bulbs (CFLs) at work areas to increase light levels at the work surface.



Lighting consumption after regular school hours can be greatly reduced if teachers switch off overhead lighting and rely instead on "task" lighting, like a desk lamp. For good measure, equip that lamp with a CFL (compact fluorescent) rather than incandescent light bulb. Energy-efficient lighting design today should be about 1.5 watts per square feet. With modern technology, that could come down to 0.9 watts per square foot.

## I Can See Clearly Now...

Dirt and dust can reduce the output of your lamps by as much as 20 percent within a year. Keep the lights their brightest by cleaning the light fixtures, diffusers, and tubes. Normal maintenance procedures call for an annual cleaning but, depending on room conditions, more frequent cleanings may be called for. Diffusers are the plastic covers over the lamps. Over time the diffusers can turn yellow/brown and significantly reduce light output. Unfortunately, this discoloration cannot be cleaned off. For safety, the diffusers should not be discarded leaving the fluorescent lamps exposed. Try to relocate the yellowed diffusers to another fixture where lighting is not critical. De-lamped fixtures would be a good place to locate yellowed diffusers. Put the newest and the brightest diffuser where good-quality lighting is most needed.

## Gym and Outdoor Lights

Your gym may have metal halide or mercury vapor lamps instead of fluorescent lights. It is not practical to try to turn mercury vapor lights on and off for short intervals, because these lamps need a few minutes to relight. The best SERT strategy is to schedule when the lights are turned on and control the number of banks used with the switches. Mercury vapor lamps consume 200 to 400 watts each (depending on the type), so the potential savings from controlling these lights is very significant.

Ensure outdoor light controls are working properly. Some outdoor lights are controlled by timers or photoelectric cells. With the timer controls, make sure they are set correctly according to changes in seasons. Also, be sure to check if your timers can be affected by a thunderstorm. Photocell-controlled lights that are on during the day indicate that the sensors have failed.

Outdoor lights that are left on during the day are a complete waste of energy. They also announce to the community that we are not being careful about energy use. Fortunately, this is an easy problem to spot and correct. It just takes developing an eye for seeing energy waste.

MCPS is in the process of installing modern technology digital clocks, designed for exterior lighting throughout the system. These electronic clocks have digital accuracy, daily sunrise/sunset adjustments, 7-day capacitor backup for power outages, and can download programming from a notebook PC. This will save hundreds of thousands of dollars each year. These new clocks will alleviate some of the mechanical and operational problems we have experienced with the original clocks, resulting in increased efficiency.

Latest research shows that night security is improved by eliminating outdoor lighting or tying it to motion sensors. **MCPS policy also requires parking lot lighting to be turned off between midnight to 5:00 a.m.** Talk with your SERT energy facilitator about adjusting the exterior lights at

your school. These new clocks will alleviate some of the mechanical and operational problems we have experienced with the original clocks, resulting in increased efficiency. Check to see if your school has updated its time clocks. If not, please contact your SERT energy facilitator to discuss the installation.

## Electric Lighting

**Rooms with no natural light:** Post "lights off" signs in rooms that are not always occupied and have no windows, like restrooms, storage areas, gyms, and copy rooms. In some cases, occupancy sensors may make sense, so the lights turn off automatically. Check with your SERT facilitator.

**Areas with natural light:** These are the electric lights that are most likely to needlessly stay on all day and waste energy, because once the sun is out people do not even notice that they are on anymore. These areas are often staircases, perimeter hallways, classrooms, lobbies, offices, media centers, and cafeterias. Changing switching from key switches to toggle switches in all-purpose rooms and cafeterias can help to conserve energy by allowing the user to adjust lighting, taking natural daylight into consideration. The ability to turn off the lights when leaving instead of leaving them on all day certainly will conserve energy.



The Light Patrol and building services should make it part of their routine in the morning to turn off lights that will not be needed during daytime anymore—it helps to make a list of those lights.

**Emergency Lighting:** Many building service managers (BSMs) are using only emergency lights with natural daylight to illuminate hallways. Regular lighting is used after dark and when it is very cloudy outside. Emergency lights may also provide adequate light levels for corridors after school hours—use the light meter to check.



*Philips & CNR Lighting awarded Montgomery County Public Schools with the Alto Leadership Award in June 2007, for their outstanding leadership in energy savings in lighting. Pictured above are Sean Gallagher, assistant director of Facilities Management; Shirley Brandman, vice president, Board of Education; Pete Grey, C. N. Robinson, and Nick Roros, Philips Lighting.*

## Conservation in Classrooms

**There are many strategies that will work in almost any classroom. Consider the following:**

- Assign a student to turn off the lights when leaving the room. You may want to give him/her the title of classroom energy manager and the responsibility to look for other opportunities to save.
- Assign an outdoor light monitor. The patrols or students who raise the flag in the morning could check to make sure parking lot lights are off. If not, notify your building service manager.
- Arrange your room to take advantage of natural light.
- Use the switches to control light banks in the room.
- Be aware of activities that provide an opportunity to lower light levels such as story time or when using an overhead projector.
- Use the blinds to allow natural light into the room. Adjust the blinds so that light reflects off the ceiling to prevent glare while spreading light over as much area as possible.
- The blinds work as insulators, too. Close them at night in the winter to help keep the heat in. Open them during the day to gain the additional light.
- Keep the lights off in coatrooms and storage areas until needed.
- Keep blower vents clear and unobstructed. When the blower unit is blocked, it has to work harder to heat or cool. It is like driving your car with the brakes on.
- Have a task light on your teacher's desk and turn out overhead lights when students are out of the room.
- Eliminate the use of electric space heaters, which are against MCPS policy. We also strongly discourage the use of auxiliary electrical appliances such as mini refrigerators. For alternative ideas, contact your SERT energy facilitator.
- Promote sorting of trash so students can recycle in the classroom.
- Take an inventory of recycling bins to determine your needs in the beginning of each school year so your school has an adequate supply of bins and roll-outs (order through Maximo).

## Computer Use

"Shut down the computer at the end of each use, unless a new user is waiting, and turn off the monitor. Only LAN file servers should be on 24 hours a day."

Turning your computer on and off by following the proper shut-down procedures will not hurt your hard drive or programs. Keeping your computer on 24 hours a day is like keeping your television on for 24 hours. It just does not make good sense.



There are a few occasions when turning the computers on and off would be a considerable inconvenience. In that case, just turning off the monitor will save half the computer's energy use.

The exceptions are ENERGY STAR systems. These will go into a sleep mode after a set period of inactivity. If your monitor has this feature, be sure it is activated. The SERT program recommends that computers be shut down at the end of the school day. When performing a manual shutdown, be

sure to follow the correct power-down procedures. Also, don't forget to ask the last users to turn off the printer(s), scanner(s), and any other computer equipment at the end of the academic day.

### **File servers need to stay on 24 hours a day.**

To save energy with a file server, turn off the monitor, if you can. You only need the monitor when you are working with the programs, place a sign on the monitor stating, "The file server is to remain on at all times, the monitor is off for energy conservation."

### **Printers should only be turned on only during working hours.**

Assign someone to shut down printers, scanners, and other office equipment at the end of each school day. Printers in classrooms should be shut down overnight. The exceptions are those printers that are connected to computers that receive printout alarms such as the energy management computers.

### **For your viewing comfort**

To increase comfort for computer users, reduce the lighting at computer stations. Glare, eye strain, and fatigue are all related to lighting that is shining on the monitor. Adjustments can be as simple as experimenting with the switches and utilizing the window blinds. Adjust the blinds so light is bounced off the ceiling, giving a more diffused and subtle lighting. In classrooms, resource rooms and the media center, try removing some lamp tubes in fixtures over the computer. Typically, 15 footcandles are enough.



In computer labs, use torchieres with a compact fluorescent lamp and switch off all the overhead lights. Lighting the wall and ceiling areas is more comfortable for computer users and eliminates reflective glare on the screens.

## **Office Equipment**

The fastest-growing energy users in many buildings are the machines we use in them. In some cases, the energy used per worker by computers, printers, copiers, scanners, and other equipment may exceed the energy used by lighting! Like lights, these machines need to be turned off at the end of regular hours. If staff needs to stay late, turn off the large copiers and select a smaller one for the less-intense use. Adjust equipment to control temperature, speed, or setting that uses less energy but still does the job properly. Ask for these features when purchasing replacement or new equipment and look for the ENERGY STAR label. A list of ENERGY STAR products can be found at [www.energystar.gov](http://www.energystar.gov).

Will this really make a difference? By reducing the "on" time from 24 hours per day, 7 days a week to 9 hours a day, 5 days a week, you reduce the consumption by 60 percent! Now, consider the amount of computers in classrooms, computer labs, resource rooms, and offices. The results may surprise you!

## Hot Water

Poor efficiency with hot water will waste both energy and water. It always pays to fix leaks promptly. Turn off hot-water taps when not needed. You can also consider using timers to control operation of the water heater to reduce energy use on weekends or over school breaks. Hot water may be used in your school solely for showers or washing hands in lavatories, or it may also be used for laundry or dishwashing. If the former, the temperature setting for hand-washing and showers doesn't need to be more than 120° F, yet often water heaters are set at a much higher temperature.

## Kitchen

There is a lot going on in the kitchen. With a sharp energy eye, you will find a lot of opportunities to reduce waste. The SERT program recommends working closely with the Food Services staff to ensure that health and safety regulations are not compromised.

Energy savings can be achieved by keeping the "on" times as close as possible to the actual use. Here are some examples:

- **Preheat ovens no longer than 15 minutes.**

Electric ovens consume a lot of energy, so they should be controlled as close as possible to actual cooking time. All ovens should reach working temperature within 15 minutes. If the oven requires a significantly longer preheating time, contact the maintenance depot for repairs.



- **Use the hood fan only when ovens are on.**

The kitchen hood fans are used to remove the fumes from cooking. This is an important safety factor. Operating the hood fan while the ovens are not in use is expensive, because the hood fan draws large volumes of conditioned air (room air that has been air conditioned or heated) and exhausts it outside. Allowing these fans to operate uncontrolled will drive your utility costs through the roof!

- **Only use lights that are needed, when they are needed.**

While the food is being prepared or when the kitchen is being cleaned, try to delay turning on the lights over the serving line until the lunch period begins.

- **Delay turning on appliances such as warmers, mixers, etc., until they are actually needed.**

- **Keep refrigerator coils clean and free of obstructions.**



- **Use thermometers in refrigerators and freezers to control actual temperatures.**

- **Start the year off with an adequate number of recycling containers in the kitchen.**

- **Consolidate food (perishables) in one walk-in unit and turn off free-standing units.**

When closing down the kitchen for long breaks and at the end of the school year, all items should be removed from the free-standing refrigerators and placed in walk-in units when possible. Free-standing units should be cleaned out, turned off, and unplugged. **In the event of power failure, food left in smaller units may spoil and go unnoticed after power is regained. Remember, food that is thawed and then refrozen/refrigerated is a safety and health hazard.**

## Building Service Staff

The success of the SERT program depends on the “magic triangle,” which is the coordination of three groups: the administration/faculty, students, and the building service staff. The building service staff members play a very important part in SERT because faculty and the students do not have the access and the technical ability to effectively deal with building issues. SERT is an area where the building service workers can take pride and achieve recognition for their extra efforts. There are many things demanding the attention of the building service workers. To get them all done in a day often seems impossible. If certain things don't get done, maintenance problems start to multiply and get bigger. It is important to take time to ensure that maintenance items are completed. Use this list as a maintenance reminder to earn your SERT cash award.



Periodically check to make sure there are recycling bins next to every trash can so that staff, students, and community users are able to recycling. Recycling containers, bins, and roll-outs are available for order through the Maximo system, under the Grounds code.

### ***Building Services Checklist***

For school breaks and long weekends please refer to the School Energy Shutdown Checklist (see appendix). During regular school operation, the following maintenance items will support your SERT team's conservation efforts throughout the year.

- Keep lights off in large common areas (gym, multipurpose room, auditorium, etc.); when not needed in empty classrooms; and in unoccupied spaces such as storerooms and crawl spaces.
- Reduce corridor lighting in over-illuminated areas and turn off lights during unoccupied periods.
- Check thermostat set points: 70°F heating, 76°F cooling.
- Reduce hot water temperature to 120°F.
- Close all windows and outside doors when cooling or heating systems are in operation to control air infiltration.
- Keep corridor and classroom doors closed when HVAC is provided.
- Check Energy Management System (EMS) schedules for accuracy.
- Air conditioning and heating is a big electricity consumer. Consolidate necessary MCPS evening activities into the minimum number of zones possible.
- Utilize student SERT patrols to check for unused appliances left on, especially before the weekend, holidays, and for the summer.
- Establish a regular inspection and cleaning schedule for lamps and fixtures. Dust buildup reduces efficiency and light outputs decrease significantly with age.
- Report repair needs of energy-wasting equipment and follow up until repairs are made.
- Report any malfunctioning equipments and schedule repairs.
- Replace filters of all equipment at recommended intervals and maintain documentation per your building maintenance plan.
- Inspect ventilation equipment for obstructions and dirt. Post signs if needed.

- Replace lenses that are cracked or yellowed with new acrylic lenses, or relocate if needed.
- Clean surfaces to increase reflectivity and repaint or recover with high reflectance.
- Replace ballasts and lamps with more efficient, lower wattage, energy-conserving bulbs wherever possible.
- Where fixtures have been removed make sure ballast has also been disconnected.
- Track energy use by logging meter readings to establish benchmarks and measure success.
- Replace exit sign light bulbs with LEDs (low-emitting diode).
- Order recycling bins.
- Ask SERT energy facilitators for PEPCO energy data.
- 

## WATER CONSERVATION

- Increase employee, faculty, and student awareness of water conservation.
- Conduct contests for employees and students (e.g., posters, slogans, or conservation ideas).
- Seek employee suggestions on water conservation; position suggestion boxes in prominent areas.
- Install signs in all restrooms encouraging water conservation.
- When cleaning with water is necessary, use budgeted amounts.
- Determine the quantity and purpose of water being used.



### On School Grounds

#### *Conservation Procedures Applicable to All MCPS Facilities*

- Be alert for water leaks and water main breaks. Report continuous water flow and ponding of water to maintenance personnel immediately. Repair leaking faucets.
- Do not use school water supplies or the school grounds to wash automobiles, buses, and trucks.
- Do not allow local residents, road maintenance tankers, or other non-MCPS agencies to use school water supplies, school hose bibs, or to control irrigation.
- Water should not be used for landscape and grass, except by contractors during initial establishment of trees and plants.
- Mulch around plants reducing evaporation and discouraging weeds. Apply mulch annually. Use mulching mowers. Leave mulch on grass to fertilize and reduce moisture loss.
- Remove weeds and unhealthy plants so remaining plants can benefit from the water saved.
- Increase mowing height to 2–3 inches and apply mulch to reduce evaporation and prevent weed growth.
- Use a broom rather than a hose to clean decks, sidewalks, and other paved areas: 5 minutes of running the hose uses 25 gallons of water.
- Collect rainwater for reuse in the garden whenever possible.
- Use native drought-resistant species of plants when replanting. Experts can help.

#### *Irrigation Procedures Applicable to High School Athletics Fields Only*

- **Water athletics fields when the ground is dry and preferably no more than two or three times a week:** The amount of water used by one sprinkler in one hour is equal to the daily water needs of a family of four. You can use an empty tuna can to measure if you had 1 inch of rain per week, which is the amount of water grass needs during the growing season (mid-April to end of September). If you can poke the wrong end of a pencil in the ground for about 2 inches, the topsoil moisture is satisfactory.
- **Water athletics fields during the coolest part of the day (preferably morning or late evening) and never water on windy days:** As much as 30 percent of water used can be lost to evaporation by watering lawn during midday.
- **Make sure irrigation equipment applies water uniformly.** Investigate the advantages of installing drip irrigation systems. Install soil moisture overrides or more sophisticated weather-sensitive controls on irrigation systems.
- **Ensure that automated irrigation systems turn off when it rains.** Installation of rain switches is highly recommended to avoid this problem.
- **Avoid runoff** and make sure sprinklers cover just the lawn or garden, not sidewalks, driveways, or gutters.
- **Avoid excess watering.** Excessive watering promotes fungal growth and prevents the development of long, deep root systems needed for healthy turf.



### Landscape Design

- Limit grass areas and use trees, shrubs, and other plants that require less water to landscape your yard: Grass turf requires 30–50 percent more water than shrubs and other groundcover. Landscape with drought-resistant plants.
- Use water-saving landscape and irrigation systems.
- Use captured rainwater/recycled water.
- Efficiently design playfields to reduce irrigation needs.

### In the School Building

- Install low-flow toilets, waterless urinals, shower heads, faucets and faucet aerators.
- Educate students, faculty, and administrative staff on the why and how of conserving water.



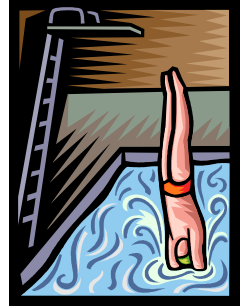
### In Operations/Maintenance Policies and Practices

- Regularly check water meters, even during no-occupancy months.
- Establish water use baseline and monitor and report consumption statistics.
- Establish method to regularly check building for water leaks and report to maintenance staff for repair.
- Repair dripping faucets, showers, and continuously running or leaking toilets.
- Install flow reducers and faucet aerators in all plumbing fixtures whenever possible.
- As appliances or fixtures wear out, replace them with ENERGY STAR models that use less water and power.
- Shut off water supply to equipment rooms not in use for safety from flooding.
- Minimize the water used in cooling equipment, such as air compressors, in accordance with the manufacturer recommendations.
- Reduce the load on air conditioning units by shutting air conditioning off when and where it is not needed, if you are not controlled by EMS.

- Ask maintenance personnel to keep hot-water pipes insulated.
- Avoid excessive boiler and air conditioner blow down. Monitor total dissolved solids levels and blow down only when needed.
- Instruct clean-up crew to use less water for mopping.

### Kitchen and Laundry Areas

- Turn off the continuous flow used to clean the drain trays of the coffee/milk/soda beverage island; clean the trays only as needed.
- Turn dishwasher off when not in use. Wash full loads only.
- Use water-conserving ice makers.
- Presoak utensils and dishes in ponded water instead of using running water rinse.
- Wash vegetables in ponded water; do not let water run in preparation sink.
- Only wash full loads of clothes.
- Evaluate wash formula and machine cycles for water-use efficiency.



### Pools

- Cover pools to prevent evaporation: An average uncovered pool loses about an inch of water a week because of evaporation.