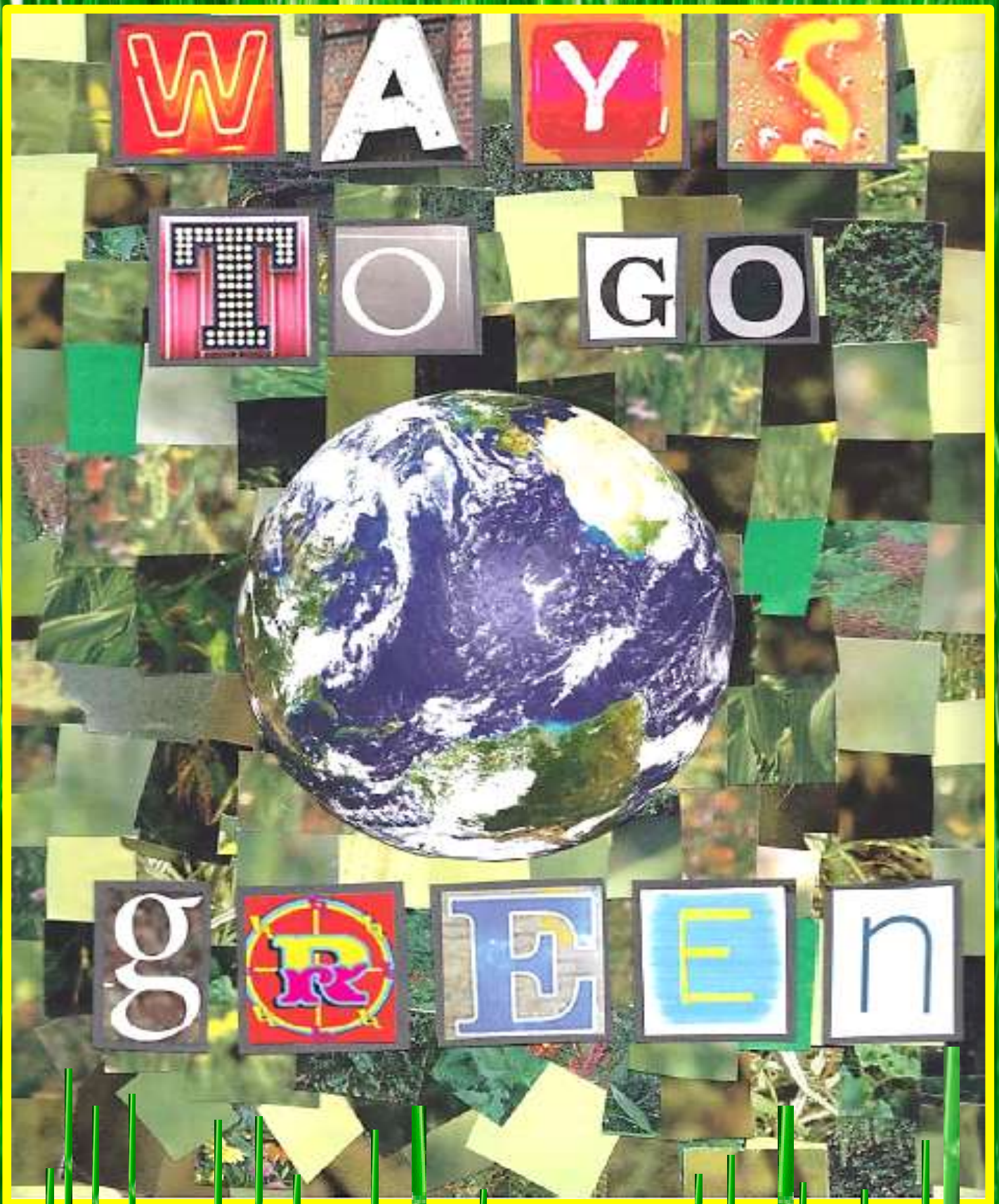


CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS MANUAL  
PRINT VERSION IS FORTHCOMING



**ENVIRONMENTAL STEWARDSHIP GUIDE**  
**CHARLOTTE MECKLENBURG SCHOOLS**  
**VERSION 1.0**

# HOLDING FOR SPONSOR

---



## Charlotte Mecklenburg Schools

Reduce | Reuse | Recycle  
ENVIRONMENTAL STEWARDSHIP CHARTER

September 1, 2010

Dear students, parents and staff:

The environment provides so much for us - it keeps us alive. Shouldn't we do everything in our power to preserve it? The world progresses too quickly to only think about the present. The future relies on what we do now, so it is our responsibility to conserve and protect what we can.

As a student, I have a responsibility of my own to share what I've learned about environmental sustainability with my peers. Parents have the responsibility to be environmentally conscious and maintain the world we live in for their children and their children's children. Teachers and staff have a responsibility to educate students and parents and make ignorance an invalid excuse.

We have been given the opportunity, as students, parents and staff, to fulfill these obligations. Doing small things during daily life such as recycling is very effective, but connecting with all of our resources and knowledge to heighten interest and motivate people to live an environmentally sustainable lifestyle is the best possible way to conserve and protect all that is within our power.

So I ask you, on behalf of students everywhere, to do anything you can to maintain and even improve the environment. If all you can do is turn off a light switch when you leave a room, you are taking responsibility for the future. When the leaders of this country and of the world are replaced by the kids sitting in classrooms today, wouldn't it be nice to say that you did your part to make the world a better place?

Thank you for putting your time and effort into making the future a little bit brighter.

Coleen O'Leary



Student for the Environment  
South Mecklenburg High School



# ACKNOWLEDGEMENTS

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**Marty Viser & Nicholas Orlandi** - Piedmont Natural Gas  
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**ACKNOWLEDGEMENTS CONTINUED FROM PAGE iv**

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The Environmental Stewardship Charter leadership team, the seven environmental tactical management plan (TMP) teams and numerous advisory committee members are developing and executing strategies leading the district toward enhanced environmental stewardship and operational efficiencies. The environmental charter routinely reports to Guy Chamberlain, the Associate Superintendent of Auxiliary Services, who is the charter executive sponsor. Additionally the charter has been reviewed and accepted by the district project management oversight committee (PMOC). Each tactic management plan team is developing tactical management plans for PMOC review.

Development of this guide is sponsored by tactic management plan team 5.1.1.1-2-3, which is charged with the engagement of all stakeholders in environmental stewardship. Development has taken place over several months beginning in the spring of 2010. TMP 5.1.1.1-2-3 conducted a series of presentations and brain storming sessions with students and staff seeking input into the design and focus of the district’s environmental management system.

Students and staff participated in the sessions at: Ardry Kell High School, Carmel Middle School, Community House Middle School, Druid Hills Elementary School, Lebanon Road Elementary School, Martin Luther King Middle School, Piney Grove Elementary School, River Gate Elementary School, and South Mecklenburg High School. Issues raised during the sessions included: energy conservation, recycling, litter prevention, how to engage students and staff at all levels in environmental activities, communication methods, challenges and or competitions between schools around stewardship activities, building efficient buildings and more. In addition to school based sessions, finance secretaries from each school and department attended engagement presentations detailing the *Strategic Plan 2014* environmental stewardship focus, CMS environmental footprint, the school partnership and incentive programs, environmentally sustainable purchasing and more. These sessions were conducted as part of the annual secretaries conference series conducted for each zone of the district.

*The cover art and much of the artwork contained in this manual was researched and developed by Mrs. Brown’s 4<sup>th</sup> grade class at River Gate elementary school. The original artwork and book are on display at the River Gate elementary library. Art was adapted to cover format, the guide layout design and publishing was conducted by Reshak Nairb. An extra special thanks goes to Ellen Dillard, who has consistently added value to charter and TMP meetings, stewardship guide editing sessions and the charter development process as a whole.*

## INTRODUCTION

This Environmental Stewardship Guide is published to provide the CMS community information and insights on the CMS environmental footprint. It includes examples of the district's environmental performance, offers examples of the efforts you can make to foster stewardship action in your own activities at home, school and work.

The Charlotte-Mecklenburg Board of Education formalized the CMS commitment to environmental stewardship in Board Policy ECF, "Environmental Stewardship" (p. 2). The Superintendent has furthered this commitment by including environmental stewardship in *Strategic Plan 2014* (p.3). The district's environmental management system is modeled on the internationally recognized ISO 14001 standard and is tailored to have environmental stewardship integrated into the everyday business of the district (p.4).

Environmental Stewardship requires the wide-ranging engagement of staff, students and the community. The district's goals to reduce utility consumption and pollution by 20%, and solid waste by 5% by June 2014 are possible through your input, participation and leadership. The snapshot below illustrates the magnitude of the district's environmental footprint.

### ENVIRONMENTAL FOOTPRINT

- 140,000+ pre-K -12 students
- 18,000+ employees, 42,000+ volunteers
- 176 schools, 670 buildings, 1241 mobiles
- 21.2 million square feet occupied space
- 4,892 acres of land
- 1451 utility accounts
- 206 million annual kilowatt hours electricity
- 3.9 million annual therms natural gas
- 256 million gallons potable water
- 2.7 million gallons of diesel
- 290 thousand gallons of gasoline
- 22.1 million miles traveled by bus fleet
- 23.5 million meals served
- 20 million pounds of solid waste w/12 percent recycled solid waste stream

The information in this guide is compiled from many sources including students, staff, teachers, community members, government agencies and more. This guide features real life CMS success stories, opportunities for improvement and resources for learning more about our impact on the environment.

Will your environmental success story be featured in next year's guide? Will you be a model of stewardship for others in the community? Will you ask others to be good stewards? Once everyone accepts responsibility for their own interactions with the environment, we will be better prepared to sustain the environment of today for the generations of tomorrow.

Please check in with the district's environmental management website periodically for updates to this guide. Your help is needed and critical to success! Reduce, reuse and recycle.

*Keep the Faith!*  
Brian





## CMBOE ENVIRONMENTAL STEWARDSHIP POLICY

---

The Board of Education believes that Charlotte Mecklenburg Schools must be an effective steward of our natural resources. The Board hereby commits that the district will continue and strengthen its efforts to operate in a manner that protects and conserves our air, water, and land resources, improves the environment, and promotes environmentally sound behavior. Further, the Board will join other local and state governmental entities in initiatives that promote environmentally sound policies and practices.

The Board directs the Superintendent to develop an Environmental Management System (“EMS”) that shall be set forth in regulations to accompany this policy. The EMS shall address, at a minimum, the areas listed below, and for each area shall include goals with objectives and strategies to achieve the objectives.

- Environmental Compliance
- Pollution Prevention
- Resource Conservation
- Resource Recovery
- Sustainable Development
- Sustainable Purchasing
- Behavioral Change

The Board further directs the Superintendent to make an annual report to the Board regarding progress in achieving the goals and objectives for each area, planned modifications of strategies in order to improve progress in meeting goals and objectives, and recommendations for changes to the EMS or to policy.

The Superintendent shall also develop a communication plan to make students, staff and the community aware of the EMS and ways in which they can contribute to the district’s stewardship of natural resources.

Adopted July 22, 2008



## STRATEGIC PLAN 2014 ENVIRONMENTAL STEWARDSHIP



Included as a focus *Strategic Plan 2014*, Environmental Stewardship, reinforces the Board of Education commitment to the environment. The Strategic Plan establishes objectives to reduce, at minimum, utility consumption by 20%, solid waste by 5% and pollutants by 20%.

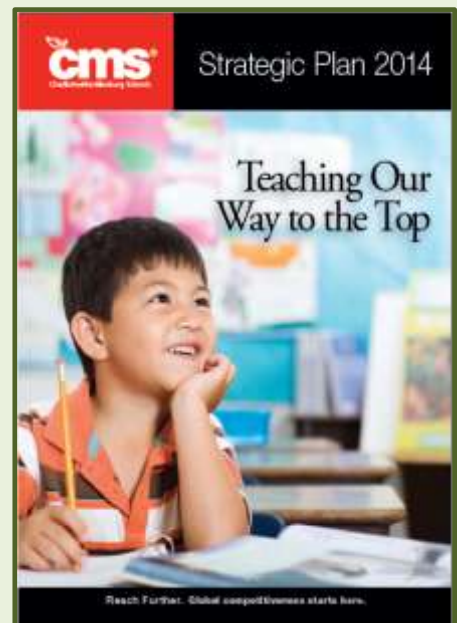
The key strategy is to, "engage all stakeholders in the conservation of resources." The district's business units are each making significant progress in reducing utility consumption, promoting environmentally sustainable purchasing, recycling and securing alternative funding through grants and other mechanisms. Maximizing improvements in the district's environmental responsiveness requires behavior change and commitment from all stakeholders and stakeholders groups.

Stakeholder engagement is being promoted by the district in ways including, but not limited to the school environmental partnership program, environmental stewardship recognition programs, parent university classes, staff environmental training, voluntary student environmental modules, strategic partnerships, and advisory committees.

*Strategic Plan 2014* is being driven by the district's environmental charter leadership team. The Environmental charter has seven tactical management plan teams made up of representatives from key stakeholder groups and led by director or executive directors leading toward measurable environmental goals.

### ENVIRONMENTAL STEWARDSHIP TACTICS

- Stakeholder engagement
- Development of ISO 14001 compliant environmental management system
- Recognition of the environmental management system by an external organization
- Reduction of electrical consumption
- Reduction of natural gas consumption
- Reduction potable water consumption
- Development of alternate funding strategies including grants
- Reduction of solid waste
- Reduction of fleet fuel consumption
- Reduction of fleet emissions
- Implementation of a sustainable development program
- Implementation of an environmentally sustainable purchasing program



## ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001

The CMS Environmental Management System is operating in compliance with the internationally recognized ISO 14001 Standard, "Environmental Management Systems." Through partnership with the North Carolina Department of the Environment and Natural Resources (DENR) Environmental Stewardship Initiative (ESI), CMS has access to EMS coaches, regional ISO EMS experts, mentors, training and general developmental support. CMS is the first K12 system recognized as ESI partner in North Carolina. Each Environmental Charter tactic management plan team is developing operational controls that will become elements of the environmental management system to ensure that this work continues into the future.



**DENR SECRETARY RECOGNIZING CMS AS ENVIRONMENTAL STEWARDSHIP PARTNER**

### WHAT IS AN ISO 14001 EMS?

The ISO 14001:2004 is a management tool enabling the district to:

- identify and control the environmental impact of its activities
- improve its environmental performance continually
- Implement a systematic approach to setting, achieving and demonstrating achievement of environmental objectives and targets.

The environmental management system is one element of a multi-faceted approach to continuous improvement using world class models of performance excellence.



Auxiliary Services is also using the ISO 9001 standard to provide the foundation for quality management in support services to the district. ISO processes are rooted in the continuous improvement plan of each Auxiliary Services department and are focused on performance excellence.

ISO 14001:2004 adds the Environmental Management System. OSHAS 18001 adds Safety Management System to begin development in the coming year.

The Malcolm Baldrige performance excellence model is being used through participation in the North Carolina Awards for Excellence, tying together all of the performance excellence elements with high level metrics and results.

The CMS Environmental Management System manual is available for review and comment online at the CMS Environmental management website.

**[VIEW THE CMS EMS BY CLICKING HERE>>> CMS EMS MANUAL](#)**

# SCHOOL ENVIRONMENTAL PARTNER PROGRAM

All school principals are invited to have your school become a recognized partner in the district's environmental stewardship initiative. It is only through the energy and efforts of CMS students and staff that the district may achieve its environmental stewardship goals.

The **partnership application** requires your principal's endorsement of the district's commitment to environmental stewardship and requests that your school provide contact information for key school environmental roles: energy coordinator, recycling coordinator, integrated pest management contact and coordinated school health team contact.

The environmental stewardship program is focused on engaging school participation in stewardship activities and programs.

There are many ways schools may participate in environmental stewardship. For example, energy conservation, recycling, fostering parent and staff carpooling and having a school coordinated health team. Many schools are already very active in environmental stewardship activity and the district wants to recognize these efforts. This guidebook provides ideas and information on how to engage in environmental stewardship activities at your school.



Schools may be recognized at three levels through the environmental stewardship program:

**Partnership** is the first level of participation. Partnership requires principal completion of the partnership application.

**CMS Green Guardian** status will be achieved by those schools that have entered partnership with the district and achieve a rating of five green stars or more during the school year by participating in a variety of stewardship activities. This status is achieved in late spring.

**CMS Environmental Champions** are the top three Green Guardian schools, one elementary, one middle and one high that have also excelled in the areas of coordinated school health, environmental action and/or utility conservation. Environmental Champions are awarded a significant incentive and will have their names displayed at the Charlotte Mecklenburg Government Center.

When each of us accepts responsibility for use of and impact on the environment, CMS will be well on its way to reducing utility consumption, solid waste generation and pollution prevention to sustain the environment of today for the students of tomorrow.

---

**DR. GORMAN DISTRIBUTED THE SCHOOL PARTNERSHIP APPLICATION FORM TO PRINCIPALS ALONG WITH THE INVITATION TO PARTICIPATE IN THE PROGRAM- CONTACT [BRIAN.KASHER@CMS.K12.NC.US](mailto:BRIAN.KASHER@CMS.K12.NC.US) IF ANOTHER COPY IS NEEDED**

---



## MECKLENBURG COUNTY

Board of County Commissioners

Dear students, teachers, parents and staff:

The environment is something that all of us need to care about, in order to allow people now and in future generations to have clean air to breath and clean water to drink. People and the natural environment around them are interdependent, and we will only survive together. Just as we have the power to destroy our natural resources, we also have the power to preserve them, and each of us can play a part.



This is why it is critical for our schools to raise environmental awareness, not only in the classroom for students to learn, but also in the very operations and practices that our schools use to function. I am pleased to see CMS taking such an active role in transforming its business practices and showing leadership in environmental preservation, both in and out of the classroom.

Each student and teacher can play a role, and each change in behavior, whether great or small, can help preserve our future. Whether you work to increase recycling, compost food scraps, reduce water usage, take fewer car trips through biking and walking, or decide not to use drive-thrus to reduce idling, you are helping keep our air and water healthy. These and many other simple changes in our daily lives will ensure a healthy future for people, animals and plants for centuries to come. Thank you for doing your part!

A handwritten signature in black ink that reads "Jennifer Roberts".

Jennifer Watson Roberts  
Chair, Mecklenburg Board of County Commissioners  
CMS graduate  
CMS parent

*PEOPLE • PRIDE • PROGRESS • PARTNERSHIPS*  
600 East Fourth Street • Charlotte, North Carolina 28202-2835 • (704) 336-2472 Fax (704) 336-5887  
[www.co.mecklenburg.nc.us/comanager](http://www.co.mecklenburg.nc.us/comanager)



## HEALTHY SCHOOLS NETWORK, INC.

773 Madison Avenue, 1<sup>st</sup> fl, Albany, NY 12208  
T 518.462.0632 F 518.462.0433  
info@healthyschools.org

[www.HealthySchools.org](http://www.HealthySchools.org)  
[www.NationalHealthySchoolsDay.org](http://www.NationalHealthySchoolsDay.org)

August 18, 2010 - *via email*

Brian K. Kasher, CET  
Manager Environmental Health and Safety  
Charlotte Mecklenburg Schools  
3301 Stafford Drive  
Charlotte, NC 28208

Dear Mr. Kasher/*Brian*:

Please accept our sincere congratulations on the new Environmental Stewardship Guide for Charlotte Mecklenburg Schools. This is a tremendous resource for the entire CMS community and I believe it will help build a deeper awareness in the community on how each and every individual, family and organization can make the environment an ordinary part of everyday decision-making.

It is very significant that the Guide starts with the CMS board of education's policy statement on sustainability that gives the district a clear direction on environmental stewardship.

I want to congratulate you as well on the CMS facility web pages that so clearly and succinctly provide a guide to federal, state, and local policies and regulations the district must implement to ensure environmentally healthy facilities for all children. This is a valuable educational effort that will continue to pay off for years to come.

It is a great pleasure to see the school facility environment work taking place and given a high priority by elected and appointed district leaders and by staff. We wish that more schools nationwide would replicate CMS' award-winning model commitments and actions to ensuring a healthy school environment for all children.

We look forward to partnering with you again for National Healthy Schools Day 2011, and to seeing CMS representatives at the EPA IAQ Tools for Schools Symposium in January 2011.

A handwritten signature in blue ink that reads "Claire L. Barnett".

Claire L. Barnett, Founder and Executive Director

## PARENT UNIVERSITY “GOING GREEN” CLASS SERIES

**Parent University** is sponsoring a series of environmental stewardship courses titled, “*Going Green at School and at Home*,” The courses cover a brief history of environmental concern, discuss CMS environmental footprint, share highlights of the environmental stewardship program, brainstorming and volunteer opportunities.



### WHAT IS PARENT UNIVERSITY?



Parent University is a community collaborative led by Charlotte-Mecklenburg Schools to help parents become full partners in their children’s education. CMS partners with community agencies and organizations to offer free courses, family events and activities that will equip families with new or additional skills, knowledge, resources and confidence.

### PARENT UNIVERSITY GOAL

The goal of Parent University is to increase parent involvement in the schools and empower parents to raise children who are successful in school, and in life. Workshops are held in schools, public libraries, YMCAs, houses of worship, businesses and other community locations. Workshop topics include: Helping Your Child Prepare for the End-of-Grade and End-of-Course Tests, to Preparing for Kindergarten, Middle and High School, and Surviving Adolescence. More than 70 course topics are available for families.

### WHY BE INVOLVED?

Research has shown that parents can increase a child's academic success through their involvement with schools and communities. Parental involvement improves student morale, attitudes, and academic achievement across all subject areas. Even if you are not a parent, we encourage you to become involved within Parent University. Volunteer opportunities are available; click this **VOLUNTEER** link for more details.

### “Going Green” at School and Home

| Date      | Location  | Room                             | Time              |
|-----------|---|----------------------------------|-------------------|
| 9/14/2010 | South Mecklenburg High<br>8900 Park Road<br>Charlotte, NC 28210                       | Look for<br>signage<br>at school | 6:30pm–<br>8:00pm |
| 9/15/2010 | Vance High<br>7600 IBM Drive<br>Charlotte, NC 28262                                   | Look for<br>signage<br>at school | 6:30pm–<br>8:00pm |
| 9/16/2010 | Butler High<br>1810 Matthews-Mint Hill Road<br>Matthews, NC 28105                     | Look for<br>signage<br>at school | 6:30pm–<br>8:00pm |
| 9/21/2010 | North Mecklenburg High School<br>11201 Old Statesville Road<br>Huntersville, NC 28078 | Look for<br>signage<br>at school | 6:30pm–<br>8:00pm |
| 9/23/2010 | Idlewild Elementary<br>7101 Idlewild Road<br>Charlotte, NC 28212                      | Look for<br>signage<br>at school | 6:30pm–<br>8:00pm |
| 9/30/2010 | Community House Middle<br>9500 Community House Road<br>Charlotte, NC 28277            | Look for<br>signage<br>at school | 6:30pm–<br>8:00pm |

### TO REGISTER FOR PARENT UNIVERSITY COURSES CONTACT:

CMS Parent University

Phone: 980.343.1719 or 980.343.0318

<http://www.cms.k12.nc.us/parents/ParentUniv/Pages/default.aspx>

# TAKING PERSONAL RESPONSIBILITY FOR ENERGY, CAMPUS CONDITIONS AND THE NATURAL ENVIRONMENT AT SCHOOL

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*Submitted by Vicki Saville, CMS Senior Facilities Architect*

Everybody knows that energy is vital to our way of life. It is no different at each of our schools. Think about the amount of effort you put into your individual house to keep it in good repair, keep the energy bills low and to conserve water. When you multiply the number of children in your house by 400, you begin to see how many times the front door of a school is opened and closed, how many light bulbs are used annually, how many toilet flushes are occurring and how many cans of trash are removed daily from each of our schools. That's why each of us should be cognizant of the efforts to conserve throughout our school system.



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## STORMWATER

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Water and air are the most valuable substances on earth. Each are easily contaminated. Today, 99% of the earth's water is undrinkable for humans. The Stormwater structures built on our campuses are part of the system by which we protect our community's drinking water. The



basins collect, cool and clean rainwater that may have become polluted by running off our parking lots, roofs and through our dusty fields. Fields with no grass are easily washed into the streams, making it hard for fish to live, and making water expensive to clean in order to drink. Every drop of rainwater is precious. Plant

material such as trees, grass and shrubs slow it down, cool it off and make it available to be absorbed into the earth. By allowing the rainwater to penetrate into the earth, rather than collecting it in an underground pipe or curb and gutter, we contribute to the health of the worms and plants that depend on it for life. Our campus rain gardens, detention basins and retention basins contribute to the water quality of Mecklenburg County and further down the Catawba chain.

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## REDUCTION, REUSE, AND RECYCLING

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**REDUCE, REUSE AND RECYCLE**, we've heard it over and over, but how have we incorporated it into our daily lives and the routine of our school days?

**REDUCE:** One of the best ways to help keep the earth clean is to reduce what you use and then reduce what you throw away. The three most important things to reduce in a school are



**energy, water** and the **creation of trash**. Each of us can check to see if the lights are off when we aren't in a room. Each of us can tell the custodian if a faucet doesn't shut off or if a toilet continues to run. And each of us should take the responsibility to bring containers for lunch or books, or the science project that can be used over and over again. We can save money for all of us through reduced energy bills, we can reduce wasteful practices of dumping clean water down the drain and we can reuse plastic containers for food, water and the show-and-tell frog.

**REUSE:** Reuse may be the most energy efficient of the three. Once an item has been used for as long as was originally intended, simply find another use for it. Anything you can think of so long as it won't be thrown into the trash. Once it is in the waste stream, it will likely go to the landfill..... forever. You can be creative by making costumes, birdhouses, personal trinkets and art.

**RECYCLE:** Here's where a product at the end of its useful life is put into a special recycle stream which takes it to a factory and makes it into something new. The less virgin materials we harvest from the earth, the less energy we are wasting and the less disruption to the natural ecosystem we are imposing. We may even save money too!

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## COMPOSTING

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Composting is one of the most effective sustainable activities each household and ultimately each schoolyard can do. It is a recycling system for food scraps and yard waste. Decomposition, sped up by a deliberate strategy in a concentrated environment can remove grass clippings, vegetable scraps, newspaper and more. It is a natural cycle that turns waste into enhanced soil thereby reducing waste output. Through changing our relationship with our trash, each of us is able to actually change the earth in an empowering positive way.

So pay attention to each time you turn on the lights, or walk by a dripping faucet or throw an apple core into the trash. Each of those common acts, if used to reduce energy use, save water and make rich soil, could soon amount to a healthier Mecklenburg County for even the smallest of its residents.

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## RELATED RESOURCES

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<http://earth911.com/>

<http://www.thegreenguide.com/>

<http://www.treehugger.com/gogreen.php>

[http://www.teach-nology.com/teachers/lesson\\_plans/science/biology/ecology/](http://www.teach-nology.com/teachers/lesson_plans/science/biology/ecology/)

<http://nwf.org/Global-Warming/Campus-Solutions.aspx>

<http://www.nwf.org/Global-Warming/Campus-Solutions/Get-Involved/Apply-for-a-Fellowship/Fellows-Handbook.aspx#educating>

<http://www.energyreallymatters.com/Publications/Green%20Campus%20Resource%20Organizations.pdf>

# HOW CAN MY SCHOOL HAVE A STEWARDSHIP PLAN?

*Submitted by Vicki Saville, CMS Senior Facilities Architect*



Everybody lives on the earth, drinks the earth's water and eats products only available through energy from the sun. We simply can't be alive without nature, so why not take care of it?

Whatever you do on your **school campus** today has an impact on you, your family and the neighborhood for future generations. All of our actions affect the quality and health of plants, animals, air, earth and water.....and each other. Only by taking care of each of our **school campuses** now, can we ensure a healthy environment for our future.

## IT'S UP TO EACH OF US TO NOT ONLY RECOGNIZE OUR INDIVIDUAL RESPONSIBILITIES, BUT TO LEAD BY EXAMPLE OF RESPECT FOR ALL THINGS AROUND US

A lot of folks don't see **school grounds** as their responsibility. They treat them differently from their yards or the picnic area at the state park. Why is that? We know that the custodians and maintenance workers do not have the time or budget to remove trash, aerate the soil, replant grass and prune limbs? Some of us park personal cars on school lawn areas, drive across sidewalks and ignore litter and trash.

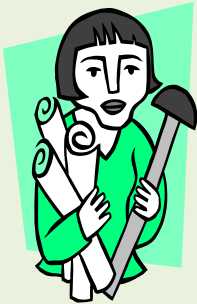
*"NATURE IS NOT A PLACE TO VISIT,  
IT IS HOME." -GARY SNYDER*

Each **school campus** is a natural environment, no different from our forests or seashore. We all must do our part to protect and improve the acres that we call Our Campus.



## EACH SCHOOL SHOULD CONSIDER A CAMPUS STEWARDSHIP PLAN

A **Campus Stewardship Plan** could be as simple as a list of items that are important to your school community: indoor air quality, water quality, indigenous flora, energy conservation, litter prevention, composting, gardens, recycling stations, green team, carpooling, the list could go on and on depending on your school's own perspective. Listing distinctive aspects of the campus identifies priorities that may become a focus area for protection or improvement.



A Campus Stewardship Plan will help highlight the values of each school's student body and administration, and remind others to appreciate and enjoy campus features. The plan could also be used to aid in applications for grants or other funding for future campus projects.

## DEVELOP A CAMPUS STEWARDSHIP PLAN

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A campus stewardship plan may include for example:

- A total site plan of the buildings and wooded areas that include parking, walkways and special and unique features.
- A list of targeted locations or objects which could use some TLC to preserve them or enhance habitat
- Recognition of your neighbors and the way their property abuts the school campus. How can you better include them in the campus master plan for stewardship of the land?



- Find out which direction is north, and apply typical seasonal weather conditions to each elevation of your school building. That way volunteers could plant evergreens on the North and West sides of your building to slow down the winter winds and deciduous trees on the South and West to shade the building in the summer and allow warming sunlight to filter through in the winter.
- A campus inventory. Are there some parts of the campus that need more vegetation? Less vegetation?
- Do special animals or plants live on your campus? Could their habitat be enhanced and protected?
- Does your campus change in the rain? In the snow? What can be done to enhance the campus during weather events? Protect from walking through puddles or sliding in the ice?
- Can you assist the custodians and maintenance workers by walking to the football field using a different path, trimming branches at windows or clearing the fresh air vents to the HVAC units?
- Each campus will benefit from caring staff and students, parents and neighbors who view the land on which their school sits as an asset to the community. The natural creatures will be grateful as well.



# HOW TO KEEP SCHOOLS AND MECKLENBURG BEAUTIFUL

The Keep America Beautiful, "Great American Cleanup", is the nation's largest community improvement program. The cleanup takes place annually from March 1 through May 31. Keep Mecklenburg Beautiful is the local affiliate active in community and school projects.

## THE GREAT AMERICAN CLEANUP MOBILIZES MILLIONS OF VOLUNTEERS TO CLEAN, BEAUTIFY AND IMPROVE LOCAL COMMUNITIES

Volunteers donate more than 5.2 million hours annually to clean, beautify and improve more than 32,000 communities at more than 30,000 events in all 50 states and beyond. Activities include beautifying parks and recreation areas, cleaning waterways, recycle collections, picking up litter, planting trees and flowers, conducting education programs and litter-free events.

## 21 TIPS FOR IMPROVING COMMUNITY ENVIRONMENTS YEAR-ROUND

1. Help CMS conduct recycling and clean-up projects.
2. Work with local groups to identify and eliminate eyesores and beautify the local environment.
3. Pick up a piece of litter every day.
4. Keep a litter bag in your car or recreational vehicle so you dispose of litter properly.
5. Create a trash fishing contest in your waterway to increase awareness about dumping and littering.
6. Write a letter to the editor asking others to respect public lands and keep them clean.
7. Create a beautiful green space planting trees and shrubs in an area needing improvement.
8. Ask local businesses to adopt-a-spot and care for it.
9. Paint and fix up playground equipment.
10. Organize a paint-out over a wall of graffiti.
11. Recycle old tires.
12. Report graffiti to your local authorities.
13. Donate your old computer equipment or dispose of it properly.
14. Conduct a recycling drive in your neighborhood or your business.
15. Volunteer to help your employer conduct paper recycling drives at work.
16. Donate used clothes to needy shelters and identify other items that you can reuse.
17. Compost yard and food waste and seek advice if you don't know how.
18. Find out how storm water can impact aquifers and ecosystems and reduce pollution
19. Ask local officials to establish community improvement activities and support volunteerism
20. Help your library establish an environmental corner that offers books and other educational material about taking care of the earth.



MECKLENBURG BEAUTIFUL

### 21. CLICK the Keep Mecklenburg Beautiful LINK BELOW for local activities!

<http://charmeck.org/mecklenburg/county/SolidWaste/KeepMecklenburgBeautiful/Pages/Home.aspx>



Keep Mecklenburg  
**Beautiful**



# THE GREAT AMERICAN **CLEAN-UP**



SPONSORED BY KEEP AMERICA BEAUTIFUL, INC.



**GET INVOLVED IN YOUR COMMUNITY!  
MAKE A DIFFERENCE. VOLUNTEER OR  
ORGANIZE YOUR OWN GROUP. REGISTER  
AT [SWATALITTERBUG.COM](http://SWATALITTERBUG.COM) OR CALL  
704.432.1772 OR E-MAIL  
[JAKE.WILSON@MECKLENBURGCOUNTYNC.GOV](mailto:JAKE.WILSON@MECKLENBURGCOUNTYNC.GOV)**

**THE GREAT AMERICAN  
**CLEAN-UP**  
MARCH 1 - MAY 31  
**2010****

## CHARLOTTE-MECKLENBURG SCHOOLS ENERGY STAR LEADER

The U.S. Environmental Protection Agency (EPA) has recognized Charlotte-Mecklenburg Schools as an Energy Star leader for improving energy performance by 10 percent across the board in 2008-2009. With the help of the Energy Star program, CMS reduced its annual operating budget by more than \$2.5 million in each of the past two budget cycles.

The district has avoided greenhouse gas emissions of more than 11,000 metric tons of CO<sub>2</sub> per year, the equivalent of planting more than 2,500 acres of trees. CMS is working to improve the efficient use of energy and water resources at campuses by creating and using an effective energy and water management plan that aligns with the district's ISO 14001 modeled environmental management system, CMBOE environmental stewardship policy ECF, Energy Star guidelines for energy management and relevant regulations.



### THIRTY CMS SCHOOLS HAVE BEEN AWARDED THE FEDERAL ENERGY STAR LABEL GIVEN FOR ENERGY EFFICIENCY

According to the EPA, Energy Star Leaders manage energy strategically across an entire portfolio of buildings using EPA's standardized measurement tool for tracking building energy use. Energy Star leaders include schools, hospitals, supermarkets, commercial real estate businesses and hospitality companies. These select organizations are recognized by EPA for improving the energy performance of their portfolio by 10 percent or more.

The EPA created the Energy Star program in partnership with the Department of Energy in 1992. The program, voluntary and market-based, is intended to encourage more energy-efficient buildings and appliances so that the nation's carbon footprint and greenhouse gas emissions are reduced.

#### YOUR SCHOOL CAN CONSERVE TOO!

Everyone can help conserve energy and other natural resources. CMS is asking for your help to improve the CMS environmental footprint and assist with our mission of improving environmental conditions for everyone.



# HOW CAN MY SCHOOL SAVE ENERGY?

## KNOW YOUR SCHOOL ENERGY COORDINATOR

Every CMS school has an energy coordinator. The energy coordinator receives monthly data detailing the school's electricity, natural gas and water consumption. Energy coordinators are encouraged to share this data with school community each month. This data may be used in classrooms to supplement class assignments, compare energy use over time and or to compare your school to other similar schools. This energy data is also a factor in the new environmental stewardship incentive program which recognizes schools for environmental accomplishment.

## CMS SPENDS AN AVERAGE OF MORE THAN \$2,700 PER HOUR ON UTILITIES

All school occupants have the ability to conserve energy. Turning off lights when not in use; keeping windows closed on hot and cold days; using day lighting, turning off running water and reporting problems to the Customer Service Call Center, these are all simple ways to conserve.

School utility consumption data is a useful tool. Each month CMS Energy Management sends the school's utilities consumption report to the school energy coordinator.

CMS has the largest environmental footprint in Mecklenburg County using more than 206 million kilowatts of electricity and 3.9 million therms of natural gas annually. The Energy Management Department monitors and reports on the district's 1450 plus monthly utility bills. The Department has developed a strategic energy plan for the control of utility operations throughout the district. The goal of this program is to maximize energy efficiency with proper consideration given to environmental and safety issues. The strategic energy plan is available for review at the environmental management website via the link at the bottom of this page.

## LEARN ABOUT ENERGY CONSERVATION AT THE ENERGY STAR WEBSITE FOR KIDS

CLICK HERE >>> [http://www.energystar.gov/index.cfm?c=kids.kids\\_index](http://www.energystar.gov/index.cfm?c=kids.kids_index)



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## EARN THE ENERGY STAR LABEL

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Excerpted from: <http://www.energystar.gov>


Did you know that a school can earn the ENERGY STAR label just like your refrigerator? An ENERGY STAR qualified school meets strict energy performance standards set by EPA and uses less energy, is less expensive to operate and causes fewer greenhouse gas emissions than its peers. Energy use in commercial buildings and manufacturing plants accounts for nearly half of all energy consumption in the U.S. at a cost of over \$200 billion per year, more than any other sector of the economy. Commercial and industrial facilities are also responsible for nearly half of U.S. greenhouse gas emissions which contribute to global warming.

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### FOR MORE THAN A DECADE, EPA HAS WORKED WITH BUSINESSES AND ORGANIZATIONS TO REDUCE GREENHOUSE GAS EMISSIONS THROUGH STRATEGIC ENERGY MANAGEMENT PRACTICES

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To qualify for the ENERGY STAR, a school must score in the top 25 percent based on EPA's National Energy Performance Rating System. To determine the performance of a facility, EPA compares energy use among other, similar types of facilities on a scale of 1-100; schools that achieve a score of 75 or higher may be eligible for the ENERGY STAR. The EPA rating system accounts for differences in operating conditions, regional weather data, and other important considerations.



**Our Actions Make a Difference**  
By saving energy at work, we help protect the environment for everyone.



As a partner with the U.S. Environmental Protection Agency's ENERGY STAR® program, we're committed to protecting the environment through energy efficiency. Last year alone, American consumers and businesses prevented the greenhouse gas emissions equivalent to 25 million vehicles by using less energy. [Learn more at www.energystar.gov.](http://www.energystar.gov)





# CMS ENERGY STAR LABELLED SCHOOLS REGISTER

List provided by [www.EnergyStar.gov](http://www.EnergyStar.gov)

The schools listed below have achieved the necessary rating to earn the Energy Star label. Click on the Map It or Profile links in blue to get more information about each facility. Many more schools are working toward achieving Energy Star labeled status.

|   |  |  |
|---|--|--|
| <p><b>Ardrey Kell High School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     10220 Ardrey Kell Road<br/>                     Charlotte, NC 28277</p>         | <p><b>First Ward Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     715 North Caldwell Street<br/>                     Charlotte, NC 28202</p>         | <p><b>Phillip O'Berry Technical HS</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     1430 Alleghany Street<br/>                     Charlotte, NC 28208</p>    |
| <p><b>Ashley Park Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     2401 Belfast Drive<br/>                     Charlotte, NC 28208</p>       | <p><b>Greenway Park Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     8301 Monroe Road<br/>                     Charlotte, NC 28212</p>        | <p><b>Polo Ridge Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     11830 Tom Short Road<br/>                     Charlotte, NC 28277</p>            |
| <p><b>Bailey Road MS</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     11900 Bailey Road<br/>                     Cornelius, NC 28031</p>                       | <p><b>Irwin Avenue Open Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     329 North Irwin Avenue<br/>                     Charlotte, NC 28202</p>     | <p><b>Rama Road Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     1035 Rama Road<br/>                     Charlotte, NC 28211</p>            |
| <p><b>Ballantyne Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     15425 Scholastic Lane<br/>                     Charlotte, NC 28277</p>     | <p><b>Lake Wylie Elem. School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     13620 Erwin Road<br/>                     Charlotte, NC 28273</p>                | <p><b>Reid Park Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Full Profile ]</a><br/>                     4108 West Tyvola Road<br/>                     Charlotte, NC 28208</p>       |
| <p><b>Barnette Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     13659 Beatties Ford Road<br/>                     Huntersville, NC 28078</p> | <p><b>Lincoln Heights Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     1900 Newcastle Street<br/>                     Charlotte, NC 28216</p>        | <p><b>Statesville Road Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     5833 Milhaven Lane<br/>                     Charlotte, NC 28213</p> |
| <p><b>Bruns Avenue Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     501 S. Bruns Avenue<br/>                     Charlotte, NC 28208</p>     | <p><b>Mallard Creek Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     9801 Mallard Creek road<br/>                     Charlotte, NC 28269</p> | <p><b>Sterling Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     9701 China Grove Church Road<br/>                     Pineville, NC 28134</p>      |
| <p><b>Collinswood Dual Language Academy</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     4000 Applegate Road<br/>                     Charlotte, NC 28209</p>  | <p><b>Mallard Creek High School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     3825 Johnston Oehler Road<br/>                     Charlotte, NC 28269</p>     | <p><b>Torrence Creek Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     14550 Ranson Road<br/>                     Huntersville, NC 28078</p>        |
| <p><b>Croft Community School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     4911 Hucks Road<br/>                     Charlotte, NC 28269</p>                 | <p><b>McKee Road Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     4101 McKee Road<br/>                     Charlotte, NC 28270</p>            | <p><b>University Meadows Elem. School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     1600 Pavilion Blvd.<br/>                     Charlotte, NC 28262</p>   |
| <p><b>David Cox Rd. Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     4215 David Cox Road<br/>                     Charlotte, NC 28269</p>    | <p><b>Montclair Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     5801 Farmbrook Drive<br/>                     Charlotte, NC 28210</p>        | <p><b>Whitewater Academy</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     11600 White Rapids Rd<br/>                     Charlotte, NC 28214</p>              |
| <p><b>Dilworth Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     405 E. Park Avenue<br/>                     Charlotte, NC 28208</p>          | <p><b>Oaklawn Elementary School</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Profile ]</a><br/>                     1810 Oaklawn Avenue<br/>                     Charlotte, NC 28216</p>           | <p><b>Winding Springs Elementary</b><br/> <a href="#">[ Map It! ]</a>   <a href="#">[ Full Profile ]</a><br/>                     6601 Horace Mann Raod<br/>                     Charlotte, NC 28269</p> |

# HOW TO READ ENERGY REPORTS FOR MY SCHOOL

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*Submitted by Bryan Steiner Senior Construction Engineer*



During the school year the CMS Energy Department sends monthly utility usage reports to all school and facility energy coordinators. The e-mail reports provide various information and may include: Energy Star rating statistics, budget reports, energy consumption reports, schools comparison reports (all elementary, all middles, all High Schools, etc.) and more. These reports are useful in both gauging your school's utility use and may serve as the basis for a number of classroom exercises using real life data.

Utility bills are not read the same day every month at every school. This is due in part to the districts having 1451 utility accounts. It would be impossible for the meter readers to gather all the data in one day. Your facility has several different bills for the same service because multiple meters are used to gather more useful data.

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## **THE CMS ENERGY DEPARTMENT SENDS MONTHLY UTILITY USAGE REPORTS TO ALL SCHOOL AND FACILITY ENERGY COORDINATORS**

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CMS uses a software program called Utility Manager Pro to conduct analysis on utility bills and generate the report information your energy coordinator receives. The software has all the bills combined using a mathematical formula so that all schools are compared to the same date range. The report your energy coordinator receives is for all the days in that month, so you can compare school to school with similar data sets.

Additionally, some of the utility reports will have either a comparison year or a previous year column. That column compares the same range of data from either the prior year or baseline year (typically 2007/2008). The CMS Energy Management department has the capacity to set up any year configuration for comparison analysis by the software. Most reports are sorted with the highest school being listed first and then progressing in descending order. Sorts are usually conducted either by cost per square/foot or energy consumption per square/foot. Energy Star reports are typically listed from highest energy star rating (most efficient) to lowest least efficient. Budget reports are typically sorted alphabetically.

Monthly utility e-mail reports will also include helpful tips on energy conservation, proposed conservation plans, and holiday checklists to help get the school facilities ready for unoccupied periods.

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**YOU ARE ENCOURAGED TO SEEK OUT YOUR SCHOOL'S ENERGY COORDINATOR, HELP POST YOUR SCHOOL'S UTILITY DATA, AS WELL AS SHARE THIS INFORMATION WITH THE PUBLIC, TEACHERS, ETC...**

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You are encouraged to seek out your school's energy coordinator, help post data sent to your school in areas accessible to students and staff, as well as share with the public, teachers, etc... Use of the data in math and science is reported to add dynamics and interest to class lessons.

As always if you have any questions or concerns please feel free to contact us through the Building Services Call Center 980-343-6050

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### SOME REPORT ACRONYMS AND TERMS YOU MIGHT SEE

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**Actual/Projected** - Existing use actual numbers are **bold**, projected numbers are *italicized*.

**BTU's** - British thermal unit

**CCF** - Hundred Cubic feet

**Energy Star 75** - KBTU's must be this number or lower to be eligible for energy star.

**KBTU's** - 1000 BTU's

**KBTU's normalized** – weather adjusted by EPA  
(on energy star report)

**Sq-ft** - Square-foot

**KWH** - Kilowatt Hours of Electricity

**% - Variance** – Percent difference between budget and actual

**Therms** – measurement of natural gas

**Total Utility** – includes electricity, Nat Gas, Water, Sewer, Storm water fees, irrigation and rental lights on campus (flood lights)

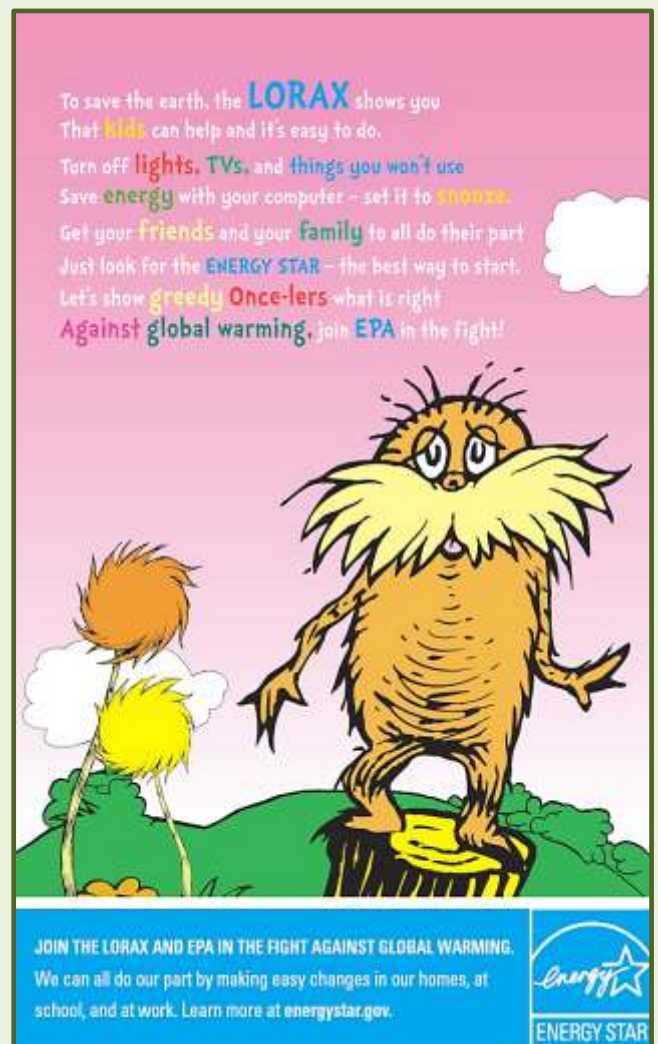
**YTD** – Year to date (July 1, - current month reporting)

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### FAST FACT

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*Reductions in kilowatt hours of electricity consumed by the district from 226,985,229 in CY 2008 to 210,628,272 in 2009 represent a total savings of 16,356,957 kilowatt hours cy2009. Using the USEPA greenhouse gas equivalencies calculator this equates to 11,747 metric tons (25, 897,701 pounds) carbon equivalent or co2 emissions from 27,319 barrels of oil consumed.*



# FREE ENERGY EFFICIENCY EDUCATION PROGRAM FOR GRADES 3–4 AND PILOT PROGRAM FOR GRADES K–1!

*Submitted by Rachel Bowie Scholastic.com*



Created by Duke Energy and Scholastic, Power in EnergySM is an exciting energy efficiency education program for students in grades 3–4. In addition, Power in EnergySM includes a program for students in grades K–1 that will be piloted in preselected schools in North Carolina. This FREE program is designed to help teachers, students, and families discover the best ways to save energy and make a difference in the world.

Students in grades 3–4 will learn about energy efficiency with the help of Ms. Frizzle and The Magic School Bus. Students in grades K–1 can also join in on the fun with the help of Clifford the Big Red Dog! To get started, teachers in grades K–1 and 3–4 will each receive a **FREE** Power in EnergySM kit including:

- **North Carolina standards-based interactive lessons**
- **Hands-on classroom activities**
- **Family materials for at-home learning.**

The Teaching Guides for grades K–1 and 3–4 feature lessons, worksheets, educational resources, and general program information. The Family Materials include tips for saving energy at home and a valuable Home Energy Survey for students to complete with their families. It's important that the survey is completed and returned so that families can become eligible to receive a **FREE** Energy Efficiency Kit, containing energy-saving tools and information. As additional incentives, teachers who return at least five copies of the Home Energy Survey will automatically receive a **FREE** set of classroom books. Families that return surveys will have a chance to win other great prizes.



## **For students in grades 3–4, lesson plans include:**



**Lesson 1** "Inside a Lightbulb" compares incandescent and CFL (compact fluorescent) lightbulbs. How do they work? Which is brighter? Which is hotter? How does that affect the energy they use?

**Lesson 2** "What a Waste!" helps students learn how electricity travels to our homes. The students then discover how energy can be wasted. The lesson includes some super math activities!

**Lesson 3** "Energy Investigation" sends teams of students around the school to scout out different places where energy is being wasted. Students learn that they can help the environment by reducing the amount of energy their school wastes.



# SCHOLASTIC

**For students in the Pilot Program for grades K-1, lesson plans include:**



**Lesson 1** “Help Light the Way” students learn what electricity is and how it travels from a power plant to their homes.

**Lesson 2** “Safety First!” teaches students about the dangers of electricity in and around the home. What can you do to stay safe?

**Lesson 3** “Energy Matchup!” helps students learn about energy-efficient tools and how to use them.

Kits arrive at schools in mid-September, so look for them in your school office!

Also, watch for North Carolina Program Coordinator Alexandra Keirstead as she visits Charlotte-Mecklenburg Schools this year! “Mrs. K.” will lead “Energy Science Assemblies” for third- and fourth-grade students. She’ll also visit kindergarten and first-grade classrooms for “Clifford’s Big Energy Idea!”

Contact her at [powerinenergyNC@scholastic.com](mailto:powerinenergyNC@scholastic.com) to learn more and schedule your school visit date!



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CLIFFORD THE BIG RED DOG and associated logos are trademarks of Norman Bridwell. All rights reserved.

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# HOW TO GREEN YOUR OFFICE: REDUCE-REUSE-RECYCLE

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## REDUCE

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- Use electronic invitations to distribute meeting times, dates and agendas.
- When needed, print handout materials on both the front and back sides of the paper.
- Set printer default to print on both sides where possible.
- If printing the meeting agenda, print it on a half sheet instead of a full sheet of paper
- Use the courier service as much as possible.
- Having an up-to-date mailing list saves printing and mailing.
- Use "print preview" and spell check before printing documents to reduce multiple drafts
- Print materials on office paper that is already used on one side.
- Consider electronic filing where feasible
- Avoid goldenrod or bright, fluorescent colored paper because it is hard to recycle. Use soy ink or recycled toner if possible.
- Try to print only the number needed for distribution.
- Make presentation handouts available on-line or send them electronically on request after the meeting or copy them onto re-used floppy disks or thumb drives
- Use tap water instead of bottled water where feasible.
- Set up an office car pool.

## REUSE

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- Organize a "Green Room" or "green space", which are designated areas within schools and offices for excess, gently used office supplies. Some school Green Rooms could have surplus 3-ring binders, disks and other similar items that may be reused.
- Use nametags in re-usable holders; be sure to have a collection box so that after the meeting, attendees can leave their nametags for future use.
- Use reusable or recyclable signs to direct people to appropriate meeting rooms.
- Before buying new meeting supplies, check to see if your school has a Green Room for the supplies you need.

## RECYCLE

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- White paper, colored paper, paper generated from bulletin boards and art projects, cardboard, box board, paper from locker clean-outs, paper from drama sets. The rule of thumb is that if you can tear it, you can recycle it. Junk mail; empty drink containers including cans, milk cartons, juice boxes and bottles, plastic containers, rigid plastics like toys and buckets, empty aerosol cans, metal food cans, magazines and phone books can all be recycled.
- Remove unused papers from the meeting room for reuse within your own office OR  
Deposit unneeded paper in designated recycling bins.
- Recycle shipping boxes.



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## ENVIRONMENTALLY SUSTAINABLE PURCHASING

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- Environmentally sustainable products and services have less negative effect on human health and the environment when compared with competing products or services that serve the same purpose. Potential comparisons may consider the environmental cost of acquisition of raw materials, production, manufacturing, packaging, distribution, reuse, operation, maintenance and disposal.
- If you are going to give away promotional items to your meeting's attendees, consider purchasing useful reusable items that are made from recycled materials. Also consider promotional items that are energy-efficient and only use items that do not contain toxic material.

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## PREVENT MESSES AND PEST PROBLEMS

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- Order foods that are least likely to leave a mess or stain if spilled. In addition to reducing cleaning needs, prevention can also reduce pest problems. Refer to the CMS Integrated Pest Management program web page. Click here >[CMS IPM Webpage](#).
- Do not bring in cleaners from home. CMS procures green cleaning chemicals which should be used for all cleaning needs.

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## CONSERVE ENERGY

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- Turn lights and electrical equipment off when not needed and when your meeting is over. Most rooms have switches.
- Turn off and unplug recharges when not in use. Charges continue to use energy even when not charging.
- Turn off unneeded lights
- Close exterior doors to keep out excess heat and cold
- Look for the Energy Star energy-efficiency logo when purchasing equipment
- Close the blinds if sun is overheating a room
- Open blinds if day lighting may be used instead of electric or to supplement electric lights.
- Have vending machine vendors install vending misers which control energy and automatically turn off interior lighting in vending machines.

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## ASK MEETING PARTICIPANTS TO HELP

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- Be sure to tell meeting attendees about your environmental efforts in pre-meeting invitations, meeting updates and with verbal reminders during the event. Ask participants for their participation. Recognize attendees, vendors and sponsors who have make an extra effort. Ask attendees for feedback and suggestions.
- If your meeting has multiple sponsors, ask all of them to commit to a Green Meeting.
- If your meeting includes vendors, ask them to be mindful of the quantity of brochures they distribute, to encourage distribution of useful, recycled-content promotion items. Ask vendors to break down any corrugated boxes so they can easily be collected for recycling.

# GOOD CHARACTER



Carolina Panthers  
Linebacker  
Jon Beason

## ALWAYS makes the play!

No matter what you have to tackle in life,  
having strong character will always help you make the play!  
Join me on the Carolina Panthers Character Team by showing your **good character!**

**Respect • Responsibility • Honesty • Caring • Justice and Fairness  
Citizenship • Courage • Perseverance • Hope**





## OZONE, HEALTH AND MECKLENBURG COUNTY

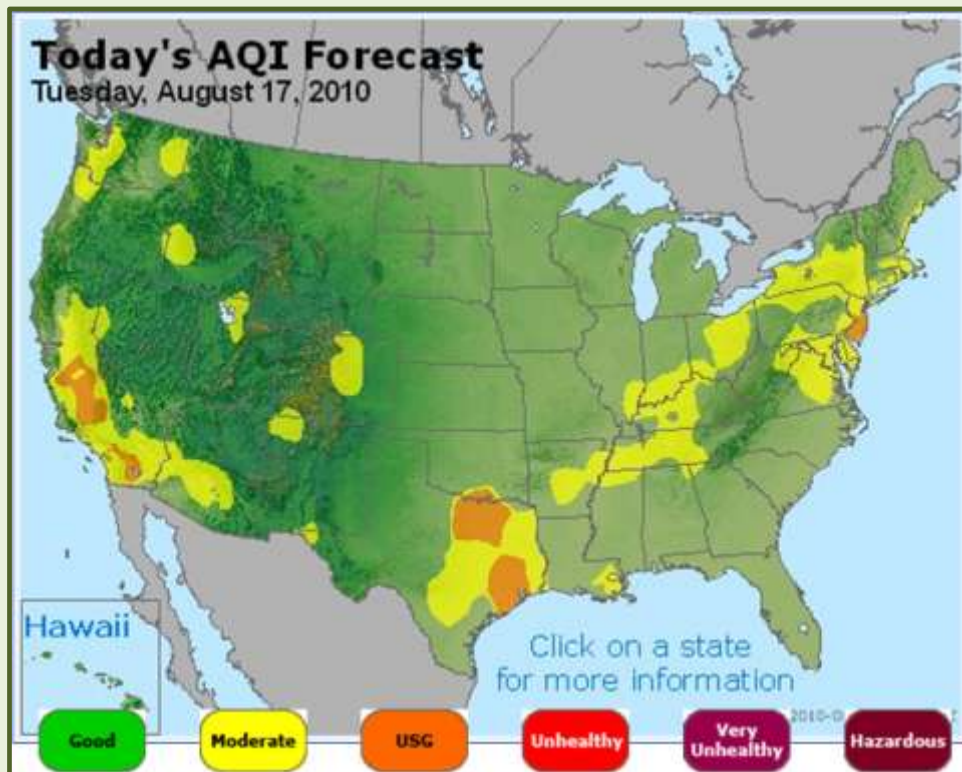
Mecklenburg County is within in a multi-county region that does not meet the USEPA air quality standards for ozone. This federal issued status is called non-attainment. Non-attainment results in additional burden on business and is indicative of air quality that may be adverse to our health.

Breathing air containing ozone can reduce lung function and increase respiratory symptoms, thereby aggravating asthma or other respiratory conditions. Ozone exposure also has been associated with increased susceptibility to respiratory infections, medication use by asthmatics, doctor visits, and emergency department visits and hospital admissions for individuals with respiratory disease. Ozone exposure may also contribute to premature death, especially in people with heart and lung disease. High ozone levels can also harm sensitive vegetation and ecosystems.

Students are particularly susceptible to air quality issues in that they breath more air by weight that adults and their bodies are still growing. Ozone can also be problematic for people with asthma or other upper respiratory issues, older adults and even healthy adults under some conditions.

The map below is an example of the national AIRNow air quality forecast map. These easy to use maps are published for each state every day to provide information on outdoor air quality. You can see the current map by clicking here > [AIRNow](#) .

The article below provides basic information on Ozone as adapted from the AIRNow website. Mecklenburg County specific information is provided by Mecklenburg County Air Quality.



# AIR QUALITY GUIDE FOR OZONE

Adapted From: <http://www.airnow.gov/index.cfm?action=pubs.aqiguideozone>

You may have seen the Air Quality Index reported in your newspaper or air quality flags hanging at your school. This guide provides you with more detailed information about what this index means to you. This guide will help you determine ways to protect your family's health when ozone levels reach the unhealthy range, and ways you can help reduce ozone air pollution.

Air pollution can affect your health and the environment. There are actions every one of us can take to reduce air pollution and keep the air cleaner and precautionary measures you can take to protect your health.

| Air Quality Index                           | Protect Your Health  |
|---|--|
| Good<br>(0-50)                              | No health impacts are expected when air quality is in this range.  |
| Moderate<br>(51-100)                        | Unusually sensitive people should consider limiting prolonged outdoor exertion.  |
| Unhealthy for Sensitive Groups<br>(101-150) | The following groups should limit prolonged outdoor exertion: <ul style="list-style-type: none"><li>• People with lung disease, such as asthma</li><li>• Children and older adults</li><li>• People who are active outdoors</li></ul>  |
| Unhealthy<br>(151-200)                      | The following groups should avoid prolonged outdoor exertion: <ul style="list-style-type: none"><li>• People with lung disease, such as asthma</li><li>• Children and older adults</li><li>• People who are active outdoors</li></ul> Everyone else should limit prolonged outdoor exertion. |
| Very Unhealthy<br>(201-300)                 | The following groups should avoid all outdoor exertion: <ul style="list-style-type: none"><li>• People with lung disease, such as asthma</li><li>• Children and older adults</li><li>• People who are active outdoors</li></ul> Everyone else should limit outdoor exertion.                 |

## WHAT YOU SHOULD KNOW ABOUT OZONE AND YOUR HEALTH

- Ozone in the air we breathe can harm our health—particularly on hot, sunny days when ozone can reach unhealthy levels.
- Even relatively low levels of ozone can cause health effects.
- People with lung disease, children, older adults, and people who are active outdoors may be particularly sensitive to ozone.
- Ozone exposure may also increase the risk of premature death from heart or lung disease.
- This fact sheet tells you how you can find out when air quality is unhealthy and take simple steps to protect your health.

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## WHAT IS OZONE

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Ozone is a colorless gas found in the air we breathe composed of three atoms of oxygen. Ozone occurs both in the Earth's upper atmosphere and at ground level. Ozone can be good or bad, depending on where it is found:

**Good Ozone.** Ozone occurs naturally in the Earth's upper atmosphere - 6 to 30 miles above the Earth's surface - where it forms a protective layer that shields us from the sun's harmful ultraviolet rays. Manmade chemicals are known to destroy this beneficial ozone. An area where the protective "ozone layer" has been significantly depleted-for example, over the North or South pole-is sometimes called "the ozone hole." The United States, along with over 180 other countries, recognized the threats posed by ozone depletion and in 1987 adopted a treaty called the Montreal Protocol to phase out the production and use of ozone-depleting substances. EPA has established regulations to phase out ozone-depleting chemicals in the United States.

**Bad Ozone.** In the Earth's lower atmosphere, near ground level, ozone is formed when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources react chemically in the presence of sunlight. Ozone at ground level is a harmful air pollutant.

For more information on ozone visit:

- [Ozone: Good Up High, Bad Nearby](#)
- [Ozone and Your Health](#)
- [Smog – Who Does it Hurt](#)
- [EPA Ground-level Ozone](#)

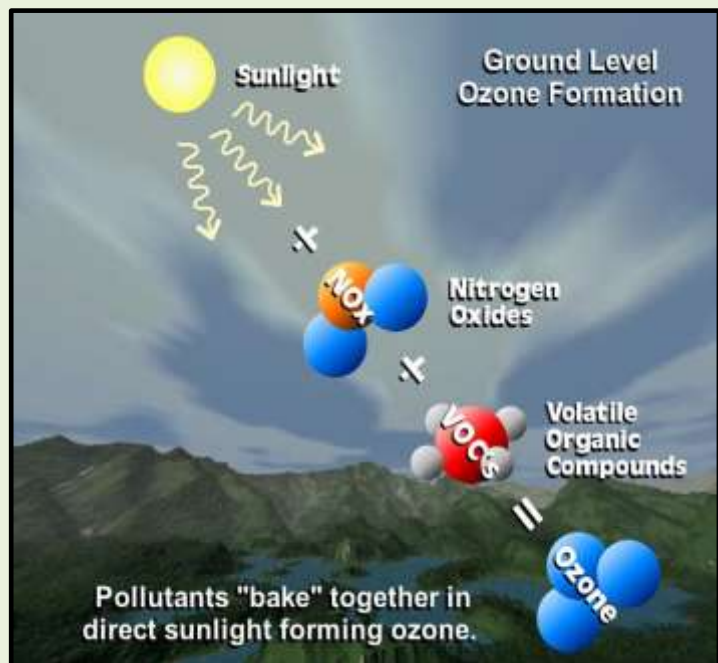


Image from NASA Earth Science Projects Division  
<http://aura.gsfc.nasa.gov/about.html>

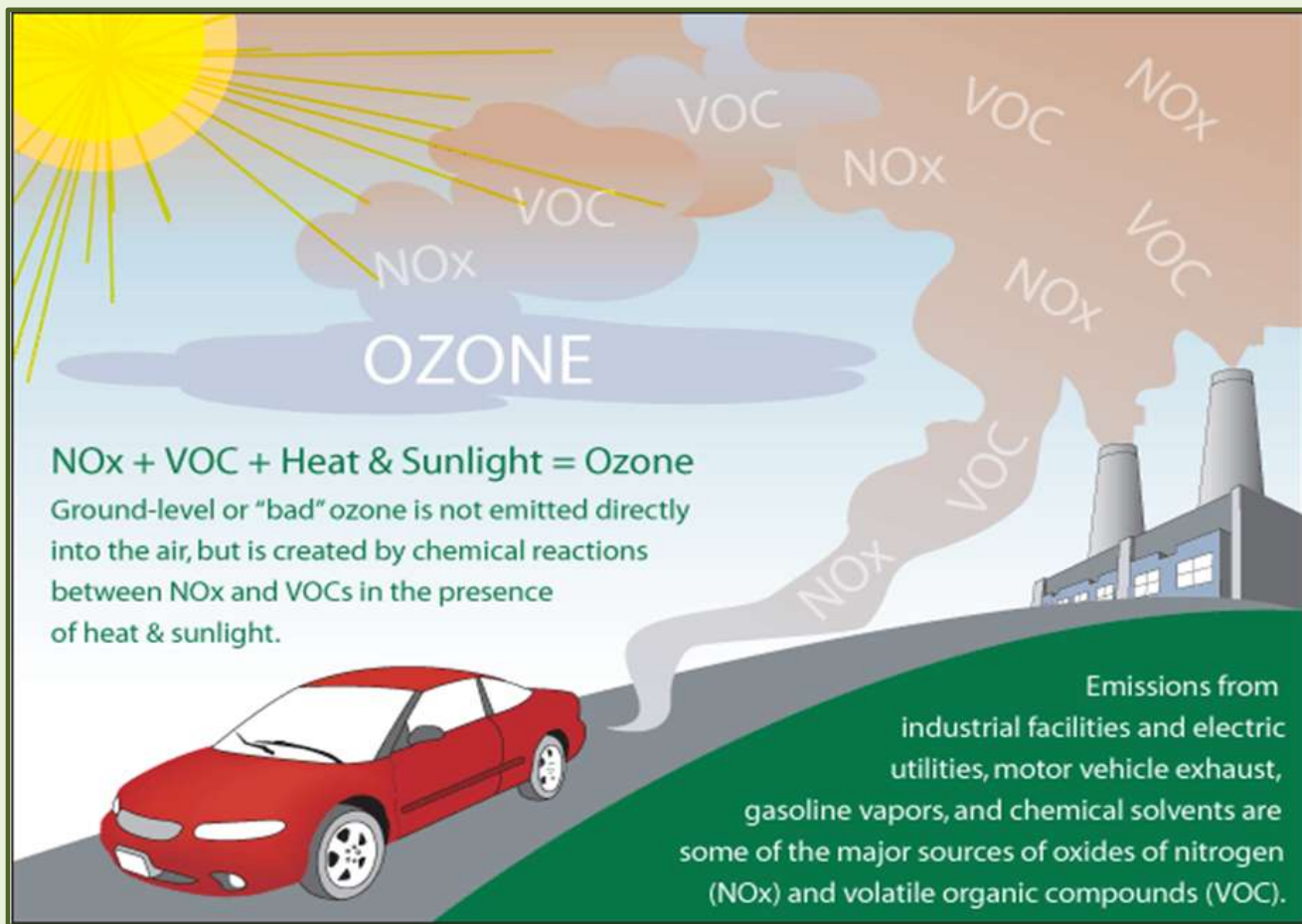
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## WHERE DOES GROUND-LEVEL OZONE COME FROM?

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Ground-level ozone is formed when two types of pollutants react in the presence of sunlight. These pollutants are known as volatile organic compounds (VOCs) and oxides of nitrogen. They are found in emissions from:

- Vehicles such as automobiles, trucks, buses, aircraft, and locomotives
- Construction equipment
- Lawn and garden equipment
- Sources that combust fuel, such as large industries and utilities
- Small industries such as gas stations and print shops
- Consumer products, including some paints and cleaners



### DOES MY AREA HAVE HIGH OZONE LEVELS?

- Ozone is particularly likely to reach unhealthy levels on hot sunny days in urban environments. It is a major part of urban smog.
- Ozone can also be transported long distances by wind. For this reason, even rural areas can experience high ozone levels.
- The Airnow Web site at [www.airnow.gov](http://www.airnow.gov) provides daily air quality reports for many areas. These reports use the Air Quality Index (or AQI) (shown on the first page) to tell you how clean or polluted the air is.
- Enviroflash, a free service, can alert you via email when your local air quality is a concern. Sign up at [www.enviroflash.info](http://www.enviroflash.info)

### HOW DOES OZONE AFFECT HEALTH?

Ozone can:

- Make it more difficult to breathe deeply and vigorously.
- Cause shortness of breath and pain when taking a deep breath.
- Cause coughing and sore or scratchy throat.
- Inflammate and damage the lung lining.
- Make the lungs more susceptible to infection.
- Aggravate lung diseases such as asthma, emphysema, and chronic bronchitis.
- Increase the frequency of asthma attacks.
- Continue to damage the lungs even when the symptoms have disappeared.

These effects may lead to increased school absences, visits to doctors and emergency rooms, and hospital admissions. Research also indicates that ozone exposure may increase the risk of premature death from heart or lung disease.

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### **WHO IS SENSITIVE TO OZONE?**

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Some people are more sensitive to ozone than others. Sensitive groups include children; people with lung disease, such as asthma, emphysema, or chronic bronchitis; and older adults. Even healthy adults who are active outdoors can experience ozone's harmful effects.

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### **WHAT IS AN AIR QUALITY ACTION DAY FOR OZONE?**

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Your State or local air quality agency may declare an Air Quality Action Day for Ozone when ozone levels are forecast to reach unhealthy levels. On ozone action days, you can take simple steps (see below) to reduce the pollution that results in ground-level ozone.

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### **KEEP THE AIR CLEANER**

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- Conserve energy-home at work, everywhere. Turn off lights you are not using.
- Carpool or use public transportation.
- When air quality is healthy, bike or walk instead of driving.
- Combine errands to reduce vehicle trips.
- Limit engine idling.
- When refueling: Stop when the pump shuts off. Putting more fuel in is bad for the environment and can damage your vehicle. Avoid spilling fuel. Always tighten your gas cap securely.
- Keep your car, boat, and other engines tuned up.
- Inflate your car's tires to the recommended pressure.
- Use environmentally safe paints and cleaning products whenever possible.
- Follow manufacturers' recommendations to use and properly seal cleaners, paints, and other chemicals so smog-forming chemicals can't evaporate.

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### **ON AIR QUALITY ACTION DAYS, YOU SHOULD ALSO:**

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- Refuel cars and trucks after dusk, when emissions are less likely to produce ozone.
- Delay using gasoline-powered lawn and garden equipment until air quality is healthy again.
- Delay using household, workshop, and garden chemicals until air quality is healthy again.

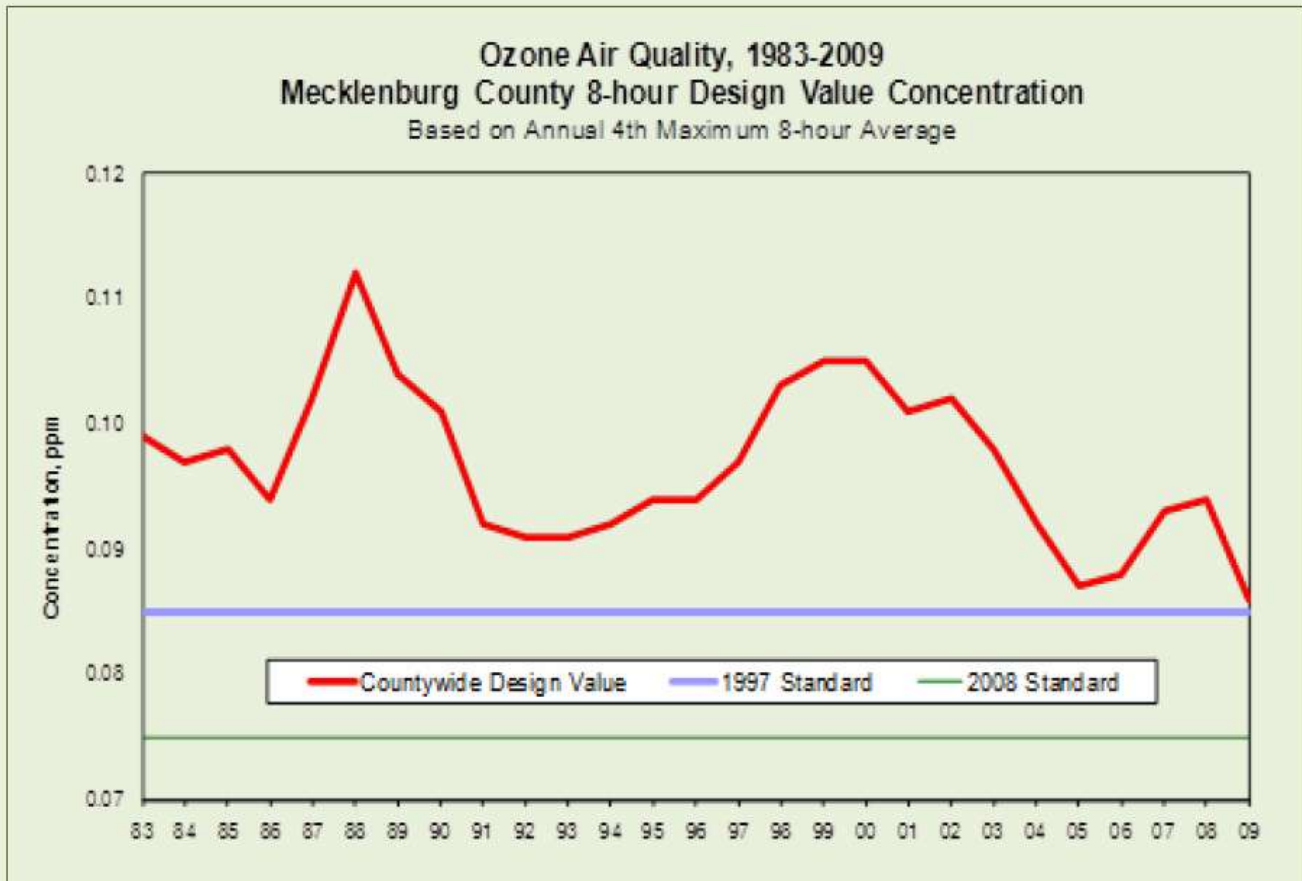
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### **MECKLENBURG COUNTY IS IN A NON-ATTAINMENT REGION**

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*The information below is supplied by Mecklenburg County Air Quality*

In 2004, Mecklenburg, Gaston, Lincoln, Rowan, Cabarrus, Union and parts of Iredell and York (SC) counties were designated a non-attainment region for ground-level ozone by the US EPA. This action was taken because the concentration of ozone in our air exceeds 1997 health standards too frequently. The graph below shows the Charlotte nonattainment region's ground-level ozone compliance value (design value) relative to old and current health-based standards.



**IMPROVEMENTS HAVE BEEN MADE THOUGH REGION HAS RETAINED ITS  
 NONATTAINMENT STATUS AND STILL STRUGGLES TO COMPLY WITH THE 1997 OZONE  
 HEALTH STANDARD**

Access to current and historical air quality data for Mecklenburg County is available through the Mecklenburg County Air Quality homepage:

[www.charmeck.org/Departments/LUESA/Air+Quality/Home.htm](http://www.charmeck.org/Departments/LUESA/Air+Quality/Home.htm)

**HOW TO HELP REDUCE OZONE POLLUTION**

In Mecklenburg County, the majority of ozone-forming air pollutants (NO<sub>x</sub> and VOCs) come from on-road vehicles, like cars, trucks, buses, etc. One of the most important things citizens can do to improve air quality is to reduce the number miles driven in our region each year.

**YOU CAN HELP BY DRIVING LESS, SMARTER, AND CLEANER**

- Ride the bus to school,
- Create a neighborhood carpool group,
- Organize a “walking school bus” for walkers or bikers,
- Trip chain after-school errands or activities,
- Don’t idle in school drop-off and pick-up lines
- Get regular tune-ups, oil changes, and keep your tires properly inflated.

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## FOR MORE INFORMATION

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For more ideas about how to improve air quality visit the Mecklenburg County Air Quality website ([www.charmeck.org/Departments/LUESA/Air+Quality/Home.htm](http://www.charmeck.org/Departments/LUESA/Air+Quality/Home.htm)) or the N.C. Air Awareness program website ([www.ncair.org/airaware](http://www.ncair.org/airaware)).

Clean Air Carolina Clean Air for Kids Website [http://www.cleanaircarolina.org/?page\\_id=29](http://www.cleanaircarolina.org/?page_id=29)

### **Air Quality Curriculum Resources**

[Air Quality Index \(AQI\) Toolkit for Teachers – January 2009 \(draft\)](#) - Compiled by the U.S. Environmental Protection Agency (EPA), this Toolkit provides teachers with easy-to-use and engaging lesson plans, additional activities, and other resources to teach students about the connections between air quality, health, weather, and other related science topics, as well as actions students can take to protect their health and reduce air pollution.

#### [Air Pollution: What's the Solution](#)

An educational project for students, grades 6 - 12, that utilizes online real time data to guide student discovery of the science behind the causes and effects of ground level ozone in the context of an authentic real world problem.

#### [EPA's Environmental Education Center](#)

Curricula and activities on a variety of air quality topics. Explore these links and find creative ways to teach your students about the environment.

### **Environmental Education**

#### [EPA's Office of Air Quality Planning and Standards' Environmental Education Web site](#)

Teacher air quality training opportunities, K-12 resource materials and grants.

### **Activities and Materials**

[Air Quality Index Kid's page](#) By using three colorful chameleons, this Web site shows children how to moderate their activity to safely play outside when air pollution levels are elevated. [Teacher's Materials](#) (Ages 7-10)

[Clean Air for Kids](#) When is the best day to go outside and play? Buster Butterfly shows you when the air is clean and it's good to play outside and when you should stay inside to play. (Ages 5-6)

[AirNow Students Page](#) Learn about ozone, particle pollution and the Air Quality Index by viewing animations or by using the on-line air pollution simulator "Smog City 2". [Teacher's Materials](#) (Ages 11 and up)

"10 Things Kids Can Do To Help the Environment" bookmark

[Front](#) (PDF, 1p., 531KB, [about PDF](#))

[Back](#) (PDF, 1p., 713KB, [about PDF](#))

[Picture Book: Why is Coco Orange?](#) - Green day, great time to play. Learn what colors can tell you about the air.

[School Flag Program](#) - The Air Quality Flag Program uses colored flags based on U.S. EPA's Air Quality Index (AQI) to notify teachers, students, school personnel and members of the community of air quality conditions.

### Web sites for Teachers and Students

[Web sites for Teachers and Students](#) A list of state and local air quality websites designed for teachers and students.

### Air Quality Links

[AIRNow](#)

[Air Quality Forecasts](#)

[Ozone and Particle Maps](#)

[What you can do about Ozone](#)

[What you can do about Air Pollution](#)

[What you can do about Climate Change](#)

[Visibility](#)

[Ozone](#)

[Ozone and your health](#)

[Particulate Matter](#)

[Summertime Safety: Keeping Kids Safe from Sun and Smog](#) (PDF, 2pp., 304KB, [about PDF](#) )



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### KNOW THE INDEX

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# HOW TO CARPOOL FOR THE ENVIRONMENT AND HEALTH

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*Submitted by Clean Air Works*



Picking up and dropping off kids at school can be a major source of traffic congestion and thus is a focus area for CMS to promote carpooling and school bus ridership.

Filling the extra seats in your car on the way to and from school means there are fewer drivers, fewer cars, less vehicle emissions and crowding on our roads. The more people who participate in carpools, the smoother the ride will be to school and to work.

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## AS THE TRAFFIC CONGESTION IN CHARLOTTE WORSENS, MORE AND MORE PEOPLE BEGIN TO LOOK AT DIFFERENT OPTIONS TO DECREASE THEIR COMMUTE TIME

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Too much traffic at the school your children attend? Then there must be someone who lives near you that is also driving kids to school. Find that person by organizing a carpool matching event in your school. If you are a CMS employee, try signing up for a match on [www.ShareTheRideNC.org](http://www.ShareTheRideNC.org).



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## THE PROCESS OF STARTING A CARPOOL THROUGH A WEB-BASED SERVICE INCLUDES

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**Registration:** You register and provide information about where you live, where you work, your work schedule, and other important details.

**Follow-up Information:** You may include additional information and ask questions to tailor your potential carpool. (Or, you can wait until you have some possible matches and discuss your preferences directly with them.)

**Additional questions may include:**

- Will the carpool members take turns driving or will one person chauffeur and the rest pitch in for gas?
- If the carpool pitches in for gas, will it be on a weekly or monthly basis?
- How flexible is the carpool's schedule?
- What happens if someone must work late?
- How long will the carpool wait for late people?

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### START A CAR POOL NETWORK AT YOUR SCHOOL

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The more traditional ways to find a carpool – through volunteers, clubs, PTA and other social networks – are for those who prefer a more personalized search method. For school parents especially, finding a carpool through a known entity like the PTA is more personal and secure.

Your PTSA could provide a carpool organizing service via one of many software programs that exist for this purpose, or by using a low-tech method with a map with pushpins. Here some tips for matching up carpoolers at a school.



- Conduct a carpooling survey in your school's student drop off lane.
- Appoint a volunteer to maintain a spreadsheet of potential carpoolers
- Promote carpooling via newsletters and at meetings
- Hold a "Car Pool Party" as one of your meetings where people can meet other people who live in their neighborhood to form carpools
- See if there is a way to designate a faster drop off track for cars that are dropping off more than one student.
- Team up with an already existing coordinated school health team to help garner wide support for carpooling initiatives.

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### COMMUNICATION AND ETIQUETTE

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After you get in touch with future carpool partners whether co-workers, or students' parents, take some time discussing what you think is proper car etiquette. The ride will be much smoother and sustainable if everyone's expectations are known up front.

- Can passengers read, talk on the phone or listen to music?
- How about eating breakfast -- can passengers or the driver eat in the car?
- Must the driver have a clean driving record before getting behind the wheel?
- Does the driver choose what goes on the radio or does the choice rotate?
- Can carpoolers use their cell phones during the ride?

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## **FINALIZING GROUND RULE ISSUES IS ONE OF THE MOST IMPORTANT ASPECTS OF SUSTAINING A SUCCESSFUL CARPOOL**

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Making sure you have a solid match will ensure you don't have to start the whole process all over again within a few weeks. Don't give up if the first few weeks are a bit bumpy -- it takes a while to work out all the kinks.

Before starting a carpool, make a list of priorities. Figure out what's most important to you and in what ways you can adjust. Then, all that remains is to settle procedural basics, like creating a backup plan in case that day's car breaks down.

It's pretty easy to start a carpool, although there are some challenges in ensuring a good setup, as well as keeping the carpool functioning over the long term. Let's find out what motivates people to start a carpool and what the benefits are.

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### **CARPOOL BENEFITS**

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- Less stressed mornings and afternoons
- Less air pollution at the school's front door and for the region
- Lower transit costs
- Less traffic in and out of our schools
- More parking in front of the school if employees are participating in carpooling



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### **GET STARTED**

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- Promote [ShareTheRideNC.org](http://ShareTheRideNC.org), the Charlotte region's free ride-matching service, to help employees find a carpool partner.
- Hold regularly scheduled "Car Pool Parties", Try-It Days and Meet Your Match events to maintain enthusiasm and get more parents engaged.
- Implement a Guaranteed Ride Home (GRH) program at your worksite. GRH alleviates employee apprehension about getting stranded.
- Develop incentives to encourage carpooling, such as preferential parking or other rewards.

# CARPOOL INTEREST SURVEY

How does your child/children travel to school?

Main way: \_\_\_\_\_ Alternative way: \_\_\_\_\_

How many minutes does it usually take you to get to and from your home to school?

How many miles (one-way) do you travel between home and school?

If you usually drive alone to drop off your child / children, what is preventing you from choosing one of the following alternatives?: (Please check all responses that apply)

Carpooling:

- I don't know anyone to carpool with
- I am not comfortable with my child / children riding with another parent
- I worry about my child riding safely in another parent's car
- My child/children has/have afterschool activities that they need transport to / from
- I drop my child off on my way to work so as not to leave him / her / them alone at home.
- I enjoy the commute time alone with my child / children
- I don't like relying on others to get me to get my child / children to school
- Other \_\_\_\_\_

Riding the bus:

- I don't know where the bus stop is
- The pick up times do not work with the rest of the family's schedule
- The ride to school is too long for him child
- The bus picks up too early to be convenient
- I don't feel safe putting my child / children on the bus
- Other \_\_\_\_\_

Biking/walking:

- I live too far from work for this to be a viable choice
- I am concerned about safety
- Other \_\_\_\_\_

Which of the following would most encourage you to try using an alternative to driving alone?

- If there were a fast lane for dropping off multiple children
- If someone were available to help me find a carpool partner
- If I could get a list of other families to carpool with
- Other \_\_\_\_\_

Is there anything about traveling to work that we have not asked you throughout this survey that you feel is important?

**Hand this survey to drivers dropping off students at school and ask that they bring it back on their next trip to the school. Collect the surveys and determine if there is interest in carpooling at your school.**

# TURN OFF YOUR ENGINE: KIDS BREATHE HERE

Submitted by Kelly Picarsic of Clean Air Carolina

The most common place to find excessive idling is at school, where parents wait to pick up students.

Have you ever left your car engine idling for more than a minute while waiting to pick up your child or sitting at a drive-thru window? Many of us have. And most of us don't grasp the harm that can be done during those 60 short seconds.

## IDLING INCREASES THE AMOUNT OF PREVENTABLE POLLUTION RELEASED INTO THE AIR AND DEGRADES OUR REGION'S ALREADY FRAGILE AIR QUALITY.

In its [2010 State of the Air report](#), the American Lung Association gave Charlotte a grade of "F" and ranked the city 10th smoggiest in the nation. Vehicle emissions from cars and trucks are one of the biggest contributors to Mecklenburg County's air quality problem. According to the [NC Division of Air Quality](#), and contrary to popular belief, idling a car for just 10 seconds uses more fuel than turning the engine off and restarting it.



**Turning off your engine while waiting saves money and improves the air your children breathe.**

## CHILDREN MOST VULNERABLE

Vehicle emissions alone harm our health, but add summertime heat to the mixture, and you've 'baked up' another, more dangerous problem – [ozone pollution](#).



Ground-level ozone pollution is formed by a chemical reaction between nitrogen oxides (NO<sub>x</sub>) emitted from cars and trucks, sunlight and hot weather. Ozone pollution contains tiny particles that penetrate deep into the lungs and irritate the respiratory system, exacerbating existing asthma.

Children are the most vulnerable: their lungs are still developing, and they breathe faster than adults, taking in more dirty air. With over 10,000 young people in Charlotte-Mecklenburg Schools (CMS) suffering from asthma, it rates as the most prevalent chronic illness in children and the number one reason for school absences. (Source: [CMS Asthma Education Program, 2009](#)).

## IRONICALLY, THE MOST COMMON PLACE TO FIND EXCESSIVE IDLING IS AT SCHOOL WHERE PARENTS WAIT TO PICK UP AND DROP OFF STUDENTS.

To reduce air pollution and to save money and fuel, all North Carolina school systems must have an idle-reduction policy for school buses. With the help of Centralina Council of Governments and Clean Air Carolina, Charlotte area school systems have installed “**Turn Off Your Engine**” signs in bus lots and carpool lanes to remind drivers, including parents, not to idle on school property.

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### TAKE THE PLEDGE!

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So the next time you pull into the carpool line or up to a drive-thru window, remember that every second you sit idle, you are exacerbating Charlotte’s air quality problem and harming the young lungs around you.

CMS and Piedmont Natural Gas have teamed up with Clean Air Carolina to encourage parents to “[take the pledge](#)” to turn off their engines and not idle unnecessarily this ozone season, especially on school property.

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### CMS HAS BEEN AN ONGOING LEADER IN ENCOURAGING IDLE REDUCTION ON CAMPUSES

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The school system has implemented a [no-idling policy](#) for all CMS vehicles and has posted signs alerting bus drivers, parents, and administrators that engines should be turned off when a vehicle is waiting or parked. CMS also has invested in exhaust pipe retrofits for school buses and has implemented a GPS system on school buses to monitor idling and route efficiency as strategies to reduce air pollution.

Piedmont Natural Gas, a strategic partner with CMS and Clean Air Carolina, has sponsored anti-idle actions at CMS schools and developed initiatives to improve local air quality with a company-wide “no idle” policy for its entire fleet of utility service and distribution vehicles. The company has also implemented various employee programs encouraging carpooling to work and walking to lunch instead of driving during ozone season.

[Take the pledge today](#) and then ask your friends and family to take the pledge too!

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### BECOME A CLEAN AIR SCHOOL!

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Our Clean Air Certificate program recognizes schools that take the lead in raising awareness about air quality around their school and in the community. Clean Air Carolina has donated air quality educational material to 35 schools in the Charlotte region. If your school is interested, you may contact Kelly at 704.342.9161 or [Kelly@cleanaircarolina.org](mailto:Kelly@cleanaircarolina.org).



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**VISIT THE CLEAN AIR CAROLINA WEBSITE: [HTTP://WWW.CLEANAIRCAROLINA.ORG/](http://www.cleanaircarolina.org/)**

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# Air Quality Word Search

There are 24 words that are often used in connection with air quality listed in the word search below. Can you find them?

s l i g i d s u t x o r u i l z i x e n k o u  
d o p o l o h a a c p e o r r l s o t n i m o  
n i t r o g e n o x i d e l i w g t c l n l o  
u o a i l h d e k p s i p h e z t o x n o a a  
o u d o o i o r e l l p l l o e d n t e o d h  
p l s f t a e i i n g o u s v i i s i l m g u  
m a c t s i m e n a o m o e a a a u u u i a a  
o h d h a u h c l s l u i e l n o u t a s u t  
c f r i a r a a b m g r v s r a g i n o t u t  
c i u s w z a e l l e n e p s e m h a n l m y  
i e e s o t a e b l o e u o g n s n e f h o m  
n k m a l o a r i i o l i l e o a m d k i o t  
a o e o o d s b d t s m e l c z n n o i u u r  
g s n o t o o l x o e g e u u o e r n k o o l  
r e t t a m e t a l u c i t r a p t r e e s a  
o e e h o a h s l f o s s i l f u e l s t r t  
e l o t m a n u e u r a v o r u c n c t t e u  
l i u k l a w a l a t n o n e y e w n g m u i  
i a t m o s p h e r e l c y c i b n c u a l e  
t o g m o y n x e g c t e l n e o t l e l e t  
a r o c p a e e y t u e e k o i l u o e e t g  
l c s i r e r x u i l l k i u u u l l r e r s  
o e i a a e o s i u e l b a s o n x i i r l e  
v i l l c r n i n p d u l t l l a s l d s t e

air  
automobile  
environment  
hazardous  
nitrogen oxide  
ozone  
recycle  
tree

asthma  
bicycle  
exhaust  
heat  
no idle  
particulate matter  
smog  
volatile organic compounds

atmosphere  
carpool  
fossil fuels  
lungs  
oxygen  
pollution  
smoke  
walk



[www.cleanaircarolina.org](http://www.cleanaircarolina.org)

# HOW TO BECOME A CLEAN AIR PROGRAM SCHOOL

The purpose of the Air Quality Awareness Program is to raise awareness on school grounds and in the surrounding community about the importance of knowing the Air Quality Code for the day.

## 1. INTRODUCING THE AIR QUALITY FLAG PROGRAM

Introduce the new program at a staff/parent and/or PTA meeting using this sheet to help explain what is involved with the program. Or, invite a Clean Air Carolina representative to your school meeting to make a presentation about the program.

Identify a parent advocate, teacher or other school staffer who is willing to become your school's "AQ Captain". (\* AQ Captains are responsible for overseeing the program at your school and will receive the daily air quality forecast email from EnviroFlash, record the color code on the chart provided in this packet, change the color-wheel on the poster to reflect the day's air quality and ensure that the correct flag is raised every day).



## 2. IMPLEMENTING THE AIR QUALITY FLAG PROGRAM

To begin the Air Quality Flag Raising program, complete and return the registration form provided in this packet. Upon receiving the completed registration form, Clean Air Carolina will register your school to receive the daily Air Quality Forecast via email through [www.enviroflash.info](http://www.enviroflash.info) and will deliver materials to your school within one week. When you receive your materials:

- **Hang the Air Quality Color-Wheel** poster at the front entrance in a visible area.
- **Begin checking email for Air Quality Forecast daily.** Email is sent every day by 4:00pm and is the forecast for the next day.
- **Record the color code on the Air Quality Code Log** provided in this packet every day.
- **Raise the Air Quality flag** that corresponds with the air quality code for the day.
- **Have office staff, AQ Captain or school nurse wear the button** that corresponds with the air quality code for the day.





- **Change the color-wheel on the Air Quality poster** every day in correspondence with that day's air quality forecast.
- **Have students announce daily air quality forecast** on morning announcements.
- **Post a short article in your school newsletter**, website, email and/or fliers.
- **Hold a flag raising ceremony** or other event to kick-off the program and to tell your students about it!

The non-profit Clean Air Carolina will award the appropriate Clean Air Certificate to each participating school at the end of every school year. Clean Air Carolina will send a press release and/or publish an Opinion Editorial in local newspapers to highlight the schools that are honored under the certification program.

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**ALL MATERIALS FOR THE CLEAN AIR CERTIFICATE PROGRAM ARE PROVIDED BY CLEAN AIR CAROLINA AT NO COST TO THE SCHOOL, IF THE SCHOOL IS WITHIN CHARLOTTE-MECKLENBURG SCHOOL (CMS) DISTRICTS.**

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For schools or other non-school institutions outside the CMS district, materials can be downloaded and printed from the Clear the Air for Kids! Webpage at [www.cleanaircarolina.org](http://www.cleanaircarolina.org) and a set of Air Quality Flags can be purchased from the Clean Air Carolina for the low cost of \$60.00.



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VISIT THE CLEAN AIR CAROLINA CLEAN AIR FOR KIDS WEBSITE  
[HTTP://WWW.CLEANAIRCAROLINA.ORG/?PAGE\\_ID=29](http://www.cleanaircarolina.org/?page_id=29)

---

**Turn off  
your engine**



**KIDS BREATHE HERE**

**Turn off  
your engine**



**KIDS BREATHE HERE**

**STUDENT DROPOFF LANE HANDOUTS PRINT - CUT - DISTRIBUTE**

**Turn off  
your engine**



**KIDS BREATHE HERE**

**Turn off  
your engine**



**KIDS BREATHE HERE**

### Why is idling of vehicles a problem?

- Vehicle exhaust is hazardous to human health, especially children. Studies have linked pollution from vehicles to increased rates of cancer, heart and lung disease, asthma and allergies.
- The American Lung Association ranked Charlotte 8th smoggiest city in 2009. Vehicle emissions are one of the main contributors to our air quality problem.
- Idling wastes your money. Idling for just 10 seconds uses more fuel than turning off the engine and restarting it.

#### What can you do?

1. Turn it off if you are stopped more than 30 seconds except when in traffic.
2. Limit your warm-up time. Driving away slowly is the best way to warm-up your car. New engines do not require warm-up at all.
3. Avoid using the drive-thru window especially during the summer.
4. Talk to your family and friends about how reduced idling helps improve Charlotte's air quality.



**Be a part of the solution!**  
Take the pledge to reduce your idling at  
[www.cleanaircarolina.org](http://www.cleanaircarolina.org)

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## HOW YOUR SCHOOL CAN TAKE THE GAS CAP CHECK CHALLENGE

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One way your school can help reduce air pollution is to sponsor a gas cap check. Mecklenburg County Air Quality will come to your school and check each vehicle's gas cap to see if it is leaking. If the gas cap leaks, a replacement cap will be provided for **FREE**.

### Benefits of gas cap checks include:

- If your gas can leaks, up to 30 gallons of gas could be evaporating out of your gas tank each year!
- A leaky cap can also release up to 200 pounds of air pollution into the air we breathe.

The costs are both in terms of money and health!

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**CHARLOTTE MECKLENBURG SCHOOLS BUILDING SERVICES CONDUCTED A GAS CAP CHECK DAY THAT IDENTIFIED AND REPLACED 16 LEAKY GAS CAPS. THIS WILL SAVE CMS 480 GALLONS OF FUEL OVER THE NEXT YEAR AND PREVENT OVER 1.5 TONS OF EVAPORATIVE AIR POLLUTION**

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Organizing a gas cap check day is both simple and free, just follow the steps below:

- Get your principal's approval.
- Contact Mecklenburg County Air Quality at 705-336-5430
- Schedule your event.
- Promote the event through emails, posters, newsletters, or announcements.



**The vehicle's gas cap is attached to a device that determines the leakage rate of the cap in under a minute**

# CMS ASTHMA EDUCATION PROGRAM

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**Over 12,000 students in CMS have been diagnosed with asthma.** Asthma is the number one chronic disease among students in Charlotte-Mecklenburg Schools.

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**ASTHMA IS THE NUMBER ONE REASON FOR SCHOOL ABSENCE FOR CHILDREN WITH CHRONIC DISEASES NATIONALLY, WITH OVER 10 MILLION DAYS MISSED PER YEAR.**

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In addition to keeping children out of school, asthma also has a detrimental effect on participation and performance in academics and physical activities. Students with asthma may lose sleep because of nighttime coughing and be lethargic or inattentive during class time as a result. They may shy away from physical activity, fearing that it may trigger an asthma attack, or may fail to take their medication because they do not want to be seen as “different.” This often leads to embarrassment, frustration and isolation.

**THE ASTHMA EDUCATION PROGRAM** is a collaborative initiative between Charlotte-Mecklenburg Schools and the Mecklenburg County Health Department, and is funded through a collaborative agreement with Centers for Disease Control and Prevention/Division of Adolescent and School Health (CDC/DASH). The goals are to create a safe, supportive learning environment; increase student participation in academic and school activities; improve attendance; and build lifelong self-management skills for children with asthma.

## **ASTHMA EDUCATION PROGRAM SERVICES**

- Educational presentations for administrators, teachers and staff
- Day and evening workshops for parents, PTA's
- Programs/support groups for students with asthma, including Open Airways (grades 3-5)
- Access to Respiratory Consulting Services (RCS), with in-school assessments and management for students with asthma
- Self-management and skill-building programs for students with asthma
- Classroom presentations on asthma and respiratory health
- Information on creating 'Asthma Friendly' school environments
- Resource materials: website, brochures, videos, books, pamphlets (in English and Spanish)
- Materials and programs for health/wellness Fairs, open houses, school sponsored events
- Facilitating communication between school, home, health care provider
- Access to specialized respiratory care services
- Parent asthma education classes through CMS Parent University and Mecklenburg County Asthma Coalition. Log onto to CMS Parent University for a list of class dates and locations.

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**CLICK HERE TO VISIT THR ASTHMA EDUCATION WEBSITE> [ASTHMA WEBSITE](#)**

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# WHAT IS ASTHMA: A FACTSHEET

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*Adapted from the National Heart, Lung and Blood Institute of the National Institutes of Health*

**Asthma (AZ-ma) is a chronic (long-term) lung disease** that inflames and narrows the airways. Asthma causes recurring periods of wheezing (a whistling sound when you breathe), chest tightness, shortness of breath, and coughing. The coughing often occurs at night or early in the morning. Asthma affects people of all ages, but it most often starts in childhood.

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**IN THE UNITED STATES, MORE THAN 22 MILLION PEOPLE ARE KNOWN TO HAVE ASTHMA. NEARLY 6 MILLION OF THESE PEOPLE ARE CHILDREN**

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The airways are tubes that carry air into and out of your lungs. People who have asthma have inflamed airways. This makes the airways swollen and very sensitive. They tend to react strongly to certain substances that are breathed in also known as asthma triggers.

When the airways react, the muscles around them tighten. This causes the airways to narrow, and less air flows to your lungs. The swelling also can worsen, making the airways even narrower. Cells in the airways may make more mucus than normal. Mucus is a sticky, thick liquid that can further narrow your airways. This chain reaction can result in asthma symptoms. Symptoms can happen each time the airways are irritated.



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## HOW DO YOU GET ASTHMA?

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The exact cause of asthma isn't known. Researchers think a combination of factors (family genes and certain environmental exposures) interact to cause asthma to develop, most often early in life. These factors include:

- An inherited tendency to develop allergies, called atopy (AT-o-pe)
- Parents who have asthma
- Certain respiratory infections during childhood
- Contact with some airborne allergens or exposure to some viral infections in infancy or in early childhood when the immune system is developing

If asthma or atopy runs in your family, exposure to airborne allergens (for example, house dust mites, cockroaches, and possibly cat or dog dander) and irritants (for example, tobacco smoke) may make your airways more reactive to substances in the air you breathe.

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## IS THERE A CURE FOR ASTHMA?

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No, but it can be controlled. Students with asthma should be able to live healthy active lives with few symptoms. Students with asthma should have an asthma action plan!

---

## **CAN A PERSON DIE FROM ASTHMA?**

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Yes. Nearly 4,000 Americans died of asthma in 2005. Some of those deaths could have been prevented with proper management and care.

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## **IT'S IMPORTANT TO TREAT SYMPTOMS WHEN YOU FIRST NOTICE THEM**

---

This will help prevent the symptoms from worsening and causing a severe asthma attack. Severe asthma attacks may require emergency care and they can cause death.

---

## **CAN ASTHMA BE MANAGED OR CONTROLLED?**

---

Sometimes symptoms are mild and go away on their own or after minimal treatment with an asthma medicine. At other times, symptoms continue to get worse. When symptoms get more intense and/or additional symptoms appear, this is an asthma attack. Asthma attacks also are called flare ups or exacerbations.

---

## **ASTHMA CAN BE MANAGED/CONTROLLED BY DOING THE FOLLOWING**

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***ASTHMA CAN'T BE CURED.*** Even when you feel fine, you still have the disease and it can flare up at any time. But with today's knowledge and treatments, most people who have asthma are able to manage the disease. They have few, if any, symptoms. They can live normal, active lives and sleep through the night without interruption from asthma.

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## **BUILD STRONG PARTNERSHIPS WITH YOUR DOCTOR, SCHOOL NURSE AND OTHER CLINICIANS ON YOUR HEALTH CARE TEAM**

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For successful, comprehensive, and ongoing treatment, take an active role in managing your disease. Build strong partnerships with your doctor and other clinicians on your health care team.

- See your doctor regularly
- Know and share your action plan with the school nurse
- Take doctor prescribe medication as directed
- Know your peak flow and symptoms
- Have an asthma action plan (aap) knowing what triggers your asthma, and staying away from asthma triggers.

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## **DIFFERENT FACTORS MAY CAUSE ASTHMA IN SOME PEOPLE THOUGH NOT OTHERS.**

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Researchers continue to explore what causes asthma.

- Some people are born with asthma
- Asthma may be genetic ( parent and child both have asthma)
- Environmental exposures.
- Being exposed to secondhand smoke.



## WHAT TRIGGERS ASTHMA?



A number of things can bring about or worsen asthma symptoms at home or at school. Your doctor will help you find out which things (sometimes called triggers) may cause your asthma to flare up if you come in contact with them. Triggers may include:

- Exercise (physical activity)
- Animal dander
- Allergens found in dust, cockroaches, mold and pollens from trees, grasses, and flowers
- Irritants such as cigarette smoke, perfumes, cologne, air pollution, chemicals or dust in the workplace, compounds in home décor products, and sprays (such as hairspray)
- Certain medicines such as aspirin or other nonsteroidal anti-inflammatory drugs and nonselective beta-blockers
- Sulfites in foods and drinks
- Viral upper respiratory infections such as colds

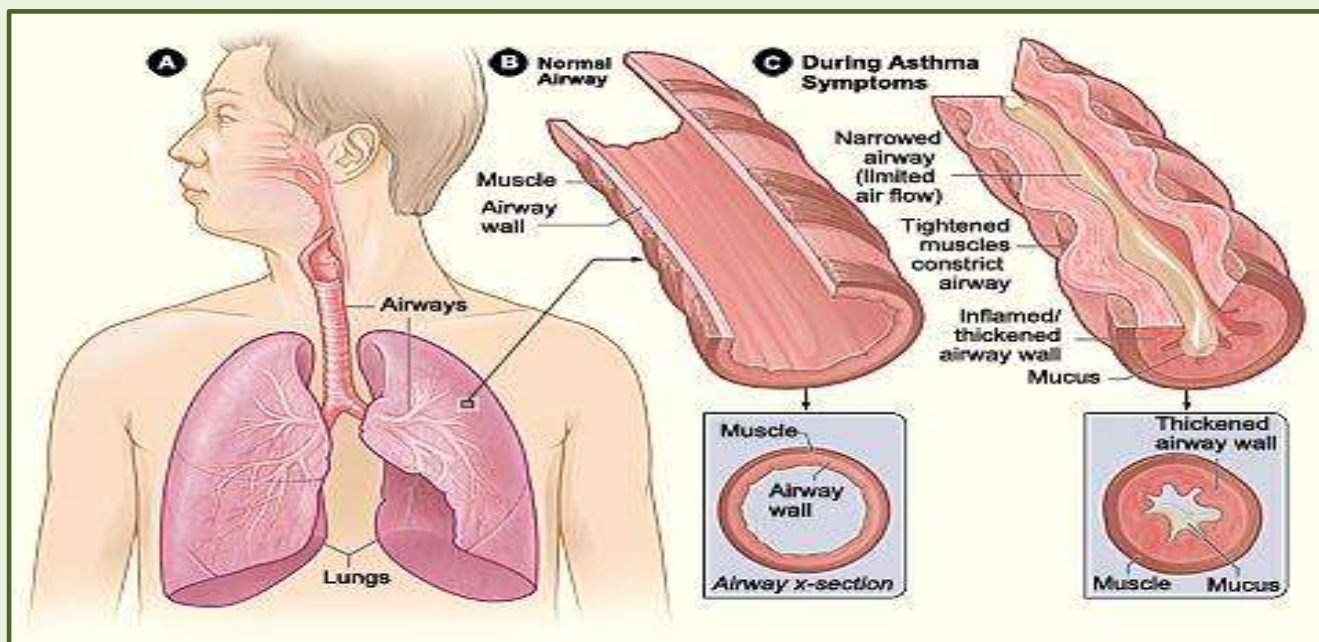


Figure A above shows the location of the lungs and airways in the body. Figure B shows a cross-section of a normal airway. Figure C shows a cross-section of an airway during asthma symptoms.



National Heart, Lung, and Blood Institute



National Institutes of Health



Department of Health and Human Services



**OTHER HEALTH CONDITIONS**—such as runny nose, sinus infections, reflux disease, psychological stress and sleep apnea—can make asthma more difficult to manage. These conditions need treatment as part of an overall asthma care plan. Some of the factors listed may not affect you. Other factors that do affect you may not be on the list. Talk to your doctor about the things that seem to make your asthma worse.

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### **ASTHMA IS DIFFERENT FOR EACH PERSON.**

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**CAN YOU OUT GROW ASTHMA?** No, most people with asthma do not outgrow their asthma. Although there is no cure, asthma can be controlled with asthma medicines and seeing your primary care physician.

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### **RESPONDING TO AN ASTHMA EMERGENCY**

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Asthma is a chronic disease of the lungs that makes it difficult to breathe. When a child with asthma is exposed to a ‘trigger’, the airways become narrow/constricted and often swollen or inflamed. During asthma episode (or attack) three main things can happen:

**Think “SET.”**

***S-swelling***; the airways become swollen which narrow the airway and make it difficult for air to pass through.

***E-Extra Mucous***; extra mucous that clogs the airway

***T-Tightening*** of the airway that further narrows the airway making it even more difficult for air to pass. Children with asthma may take controller medicines every day to prevent asthma symptoms. During an asthma episode, children need to take their rescue or quick relief medication as soon as possible. Rescue or quick relief inhalers open the airways. All students with asthma should have their rescue inhaler at school.



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### **KNOWING THE SIGNS AND SYMPTOMS OF ASTHMA TO HELP RECOGNIZE AND RESPOND FASTER TO AN ASTHMA EMERGENCY**

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#### **EARLY ASTHMA SIGNS**

- Coughing
- Shortness of breath
- Wheezing
- Tightness in the chest or throat
- Stomach pain

#### **LATE ASTHMA SIGNS**

- Breathlessness
- Blue or gray skin, lips and fingertips
- Difficulty talking or walking
- Restlessness, agitation



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## STEPS YOU SHOULD TAKE IN AN ASTHMA EMERGENCY

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1. Stop the activity and help the child to a sitting position.
2. Stay calm. Reassure the student you are there to help.
3. Help the child take his/her medication, if available.
4. If the child is at school, accompany child to the health office or call the school nurse, first responder.  
**NEVER SEND THE CHILD TO THE OFFICE ALONE!**
5. Notify the child's parent or guardian.

---

## CALL "911" IF THE STUDENT HAS ANY OF THE FOLLOWING

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No improvement after taking medication

- The child does not have medication at school
- Trouble walking or talking
- Struggles to breathe
- Chest, neck muscles pull in when breathing
- Flared nostrils
- Lips, skin are blue or grey
- Confused, agitated or loses consciousness



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## ADDITIONAL RESOURCES

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### NHLBI RESOURCES

- ["Asthma Action Plan"](#)
- ["Asthma and Physical Activity in the School"](#)
- ["How Asthma-Friendly Is Your Child-Care Setting?"](#)
- ["How Asthma-Friendly Is Your School?"](#)
- [How the Lungs Work](#) (Diseases and Conditions Index)
- ["My Asthma Wallet Card"](#)
- ["National Asthma Education and Prevention Program Resolution on Asthma Management at School"](#)
- ["So You Have Asthma"](#)
- ["Suggested Emergency Protocol for Students With Asthma Symptoms"](#)

### Non-NHLBI Resources

- [Asthma](#) (MedlinePlus)
- [Asthma in Children](#) (MedlinePlus)

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## FOR MORE INFORMATION, CONTACT YOUR SCHOOL NURSE OR

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**CMS Asthma Education Program: 980-343-0367**

<http://www.cms.k12.nc.us/cmsdepartments/csh/AsthmaEdu/Pages/default.aspx>

## HOW TO MANAGE CLASSROOM ASTHMA – BIG 10

**1. BE INFORMED:** Use the Environmental Protection Agency's Indoor Air Quality (IAQ) Tools for Schools Kit. Help students, staff and visitors by improving the school environment by utilizing practices recommended in the kit.

### **2. CONTROL ANIMAL ALLERGENS**

Remove classroom animals from the school, if possible. If not, locate animals away from sensitive students and ventilation systems.

### **3. CONTROL COCKROACH ALLERGENS**

Use Integrated Pest Management practices to prevent cockroach and other pest problems (e.g., store food in tightly sealed containers and place dumpsters away from the building).

### **4. CLEAN UP MOLD AND CONTROL MOISTURE**

Fix moisture problems and thoroughly dry wet areas within 24-48 hours to prevent mold growth. Clean up moldy hard surfaces with water and detergent, and then dry thoroughly. Contact maintenance if the problem is severe.

### **5. PROPER USE OF HVAC SYSTEMS**

Many IAQ problems are created from misuse of the heating, ventilation and air conditioning systems. When the unit is turned off, filtration and dilution of classroom air with outside air is prevented. Contaminants and carbon dioxide levels may build up gradually and cause irritation to some individuals.

### **6. REDUCE DUST MITE EXPOSURE**

Make sure school is dusted and vacuumed thoroughly and regularly.

### **7. DO NOT OPEN WINDOWS DURING THE HOT/HUMID MONTHS**

Opening windows when it is humid out can create a problem in the afternoon when the windows are shut and the AC is on. The AC unit has a hard time taking all of the humidity out of the air, and if the room gets too cool or it's not operating properly can lead to high humidity or condensation in the room, potentially creating a mold problem.

### **8. DO NOT SET THERMOSTATS BELOW 70\* IN THE SUMMER**

As mentioned above, if a room is too cold, this can cause condensation on ductwork or on desks/tables leading to mold growth if it continues over a period of time.

### **9. INSPECT YOUR CLASSROOM REGULARLY**

Many times there is a complaint in a classroom the problem can be easily identified. Areas under sinks in the classroom are a big problem if there is a leak and it goes undetected, or is not reported to maintenance.

### **10. DO NOT USE AIR FRESHENERS/PLUG-INS ETC.**

For various reasons many classrooms may not have the most pleasant odor. Masking agents such as air fresheners do not cure the problem, they only add chemicals and particles into the air that can trigger asthma and allergic responses in some individuals. In fact, if there is a building rooted problem they could hide it from being diagnosed.

For all children with asthma

Mecklenburg County Health Dept.

Student Name \_\_\_\_\_ CMS Student ID# \_\_\_\_\_  
 School/Year \_\_\_\_\_ Grade/Teacher \_\_\_\_\_  
 Parent/Guardian \_\_\_\_\_ Contact Number (H) \_\_\_\_\_ Cell \_\_\_\_\_ Work \_\_\_\_\_  
 Physician's Name \_\_\_\_\_ Physician Phone Number \_\_\_\_\_ Fax \_\_\_\_\_

1. NO SMOKING in your home or car, even if your child is not with you.
2. Always use a spacer with inhalers (MDIs).
3. Shake inhaler before every spray (puff).
4. Remove, control and stay away from known triggers in your child's environment.
5. Clean plastic part of inhaler weekly using package directions.
6. Prime inhaler after opening and before use if not used in more than two weeks. Proair-three puffs, all others four puffs.

Child's triggers are: (circle or check all that apply to your child)

- |  |   |   |   |
|--|---|---|---|
| <input type="checkbox"/> Respiratory infections or flu | <input type="checkbox"/> Mold               | <input type="checkbox"/> Pollen         | <input type="checkbox"/> Dust, dust mites       |
| <input type="checkbox"/> Weather/temperature changes   | <input type="checkbox"/> Indoor pets        | <input type="checkbox"/> Exercise       | <input type="checkbox"/> Strong odors or sprays |
| <input type="checkbox"/> Indoor/outdoor pollution      | <input type="checkbox"/> Household cleaners | <input type="checkbox"/> Strong emotion | <input type="checkbox"/> Cockroaches            |
| <input type="checkbox"/> Smoke                         | Other allergies _____                       |   |   |

|                                     |                                 |
|-------------------------------------|---------------------------------|
| <b>GREEN ZONE – ALL CLEAR – GO!</b> | <b>USE CONTROLLER MEDICINES</b> |
|-------------------------------------|---------------------------------|

**ASTHMA IS WELL CONTROLLED**

No controller medicine needed at this time

You should have:



- No wheezing
- No coughing
- No chest tightness
- No waking up at night because of asthma
- No problems with play because of asthma
- Peak flow number from \_\_\_\_\_ to \_\_\_\_\_

| Medicine | Method | How Much | How often           |
|----------|--------|----------|---------------------|
| _____    | _____  | _____    | _____ times per day |
| _____    | _____  | _____    | _____ times per day |
| _____    | _____  | _____    | _____               |
| _____    | _____  | _____    | _____               |
| _____    | _____  | _____    | _____               |

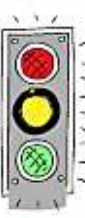
15 minutes before exercise use \_\_\_\_\_ puffs (inhaled)  
 \*Rinse child's mouth after using inhaled steroids (daily/controller medicines).

|   |                                   |
|---|-----------------------------------|
| <b>YELLOW ZONE – CAUTION! – TAKE ACTION</b> | <b>TAKE QUICK RELIEF MEDICINE</b> |
|---|-----------------------------------|

**ASTHMA GETTING WORSE**

Continue to use green zone daily medicines and add:

You may have:



- Coughing
- Wheezing
- Chest Tightness
- First signs of a cold
- Coughing at night
- Peak flow number from \_\_\_\_\_ to \_\_\_\_\_

| Medicine  | Method  | How much                  | How often             |
|---|---------|---------------------------|-----------------------|
| Albuterol/Xopenex   | inhaled | _____ puffs OR _____ vial | Every _____ hours prn |
| _____ May repeat after 20 minutes x 1 (Indicate with check) |         |                           |                       |

Also take: \_\_\_\_\_

If yellow zone symptoms continue for 24 hours or child needs extra rescue medicine more than 2 times per week, call your child's doctor.

|   |                                   |
|---|-----------------------------------|
| <b>RED ZONE – STOP! – GET HELP NOW!</b> | <b>TAKE QUICK RELIEF MEDICINE</b> |
|---|-----------------------------------|

**THIS IS AN EMERGENCY!**

You may have:



- Quick relief medicine that is not helping
- Wheezing that is worse
- Faster breathing
- Blue lips or nail beds
- Trouble walking or talking
- Chest and neck pulled in with each breath
- Or Peak flow less than \_\_\_\_\_

Continue to use green zone medicines and do the following:  
 Use \_\_\_\_\_ puffs or 1 vial Albuterol/Xopenex inhaled every 20 minutes for a total of \_\_\_\_\_ doses.

**CALL DOCTOR NOW!** If you cannot reach doctor, **CALL 911** or go directly to the **EMERGENCY ROOM**  
**DO NOT WAIT!**

|                                     |            |
|-------------------------------------|------------|
| Physician Signature _____           | Date _____ |
| Parent/Guardian Signature _____     | Date _____ |
| School Health Nurse Signature _____ | Date _____ |

(SCHOOL NURSE USE ONLY) Student self carries inhaler Y/N Inhaler in the Health Room Y/N Inhaler in classroom Y/N CI 45 3/09

## SCHOOL ASTHMA CHECKLIST

Student Name \_\_\_\_\_  
Grade/Teacher \_\_\_\_\_  
School Year \_\_\_\_\_

### PLEASE COMPLETE THE FOLLOWING:

Complete the Asthma Action Plan/Medication Authorization form (see steps below).

- Step #1** Check/circle your child's asthma triggers (things or activities that make your child's asthma worse).  
Sign the bottom of the form.
- Step #2** Take the form to your child's doctor and have him/her fill out the medication sections (red, yellow and green zones). The doctor must sign the bottom of the form.  
(Medications will not be given without both parent and doctor signatures)
- Step #3** Bring to school:
- Asthma Action Plan/Medication Authorization Form
  - Asthma Quick-relief (rescue) Medications: inhaler or nebulizer with medication
  - Asthma equipment (inhaler, spacer and peak flow meter)
  - Please make sure inhaler is in original box with prescription label and not expired
  - We recommend that your child have an inhaler at school and at home
- Step #4** *Contact Information*: Provide the school with up to date home/work/cell phone numbers and emergency contacts so that we may always be able to reach you. Call the school if any of these numbers change.
- Step #5** For your child to keep inhaler with him/her, the Authorization for Self Medication by CMS Students must be filled out and signed by the doctor, parent and student.

Your school nurse is: \_\_\_\_\_  
and can be reached at (980) 343-\_\_\_\_\_ (school) or (704) 446-\_\_\_\_\_ (voicemail).

We can all work together to make your child's school experience the best it can be.

## AUTHORIZATION FOR SELF-MEDICATION BY CMS STUDENTS

Student's Name \_\_\_\_\_ Birthdate \_\_\_\_\_

Medication \_\_\_\_\_ for \_\_\_\_\_

**Eligibility:** In accordance with CMS Policy JLCD, Administering Medications to Students, and its accompanying regulation, JLCD-R, only students who meet the following descriptions may possess and self-administer medications: (1) Students with special medical needs such as asthma and/or severe allergies or who are subject to anaphylactic reactions and may require emergency medications (i.e., asthma inhaler or epinephrine auto-injector ["Epi-pen"]); and (2) Students who require frequent administrations of non-prescription medications or prescription medications that are not controlled substances.

**Healthcare Provider:** The student named above has (1) asthma or an allergy that could result in an anaphylactic reaction and may require emergency medications; or (2) a condition that requires frequent administration of a prescription or non-prescription medication. The medication is not a controlled substance. This student is capable of, has been instructed on the procedures for and has demonstrated the skill to self-administer this medication as directed on page 1 of this form. Please allow him/her to self-administer the medication during school hours and as otherwise indicated on page 1 of this form.

This student will not require adult supervision while taking this medication.

Physician signature/date \_\_\_\_\_

**Parent/Guardian:** I give consent to the Charlotte-Mecklenburg Schools to allow my child to self-administer this medication at school. I understand that my child and I assume responsibility for the proper use and safekeeping of this medication. If the medication that is prescribed for my child is for the treatment of asthma or anaphylactic reactions, I agree to provide a supplementary supply of the medication that will be kept by the school in a location to which my child has immediate access. I absolve the Charlotte-Mecklenburg Board of Education and their agents and employees from any and all liability whatsoever that may result from my child possessing or taking this medication at school. I further consent for the information about my child included on pages 1 and 2 of this form to be shared with appropriate school staff as necessary for the safety of my child.

Parent signature/date \_\_\_\_\_

**Student:** I am capable of taking this medication as recommended and accept this responsibility. I will keep it secure at all times and will not share it with others. I understand that I will be subject to discipline under the Student Code of Conduct if I abuse the privilege of being allowed to self-medicate while at school or school sponsored activities. Unless the medication is prescribed for the treatment of asthma or anaphylactic reactions, I understand that I will lose the privilege of self-administering my medication if I do not follow these rules.

Student signature/date \_\_\_\_\_

**School Nurse:** I have reviewed this request and acknowledge that this student has demonstrated the skill level to self-administer this medication. I have informed this student that he or she must tell an appropriate staff member whenever he or she has used the medication at school.

Nurse signature/date \_\_\_\_\_

# MRSA FAQs

*Collaborative effort between the Mecklenburg County Health Department and Charlotte-Mecklenburg Schools*

MRSA is short for Methicillin-resistant Staphylococcus aureus. Staphylococcus aureus, or staph, is a common bacteria – so common that 25 to 30 percent of us have it living on our skin at any one time. MRSA is a less common variety of staph that isn't affected by common antibiotics, such as penicillin. MRSA is not only resistant to all penicillin-like antibiotics, but is often resistant to many other types of antibiotics as well. MRSA usually infects people who are in hospitals or long-term care settings, but over the past 10 years it has become more of a problem outside of health care settings.



## WHAT ARE THE SYMPTOMS OF MRSA?

MRSA skin infections begin as a small bump that may look like a pimple or a bug or spider bite. But, that little spot soon turns red, swells, gets hot, is painful to touch and fills with pus. Anyone with those symptoms should see a health care provider immediately.

## WHAT IS THE TREATMENT FOR MRSA?

Health care providers evaluate MRSA on case-by-case basis. In some cases, the patient may be treated with antibiotics. Whether or not antibiotics are prescribed, MRSA lesions that are open or draining pus must be tightly covered with bandages to prevent contact with the infection.

## HOW IS MRSA SPREAD?

MRSA is spread through direct contact with the infected skin or through contact with shared items or surfaces that have come into contact with someone else's infection (e.g., towels, used bandages). MRSA tends to create a lot of pus, which is highly contagious. That's why MRSA lesions need to be tightly bandaged to prevent draining pus from coming in contact with others. Since MRSA is very common in the environment and on people's skin, it is not possible to avoid coming in contact with it altogether. However, people can dramatically reduce their chances of getting infected by avoiding contact with drainage from infected lesions and following important prevention steps including washing hands frequently, keeping cuts and scrapes clean and covered and not sharing towels or other personal items.

## CAN MRSA BE SPREAD THROUGH SITTING IN A CLASSROOM WITH AN INFECTED STUDENT?

No. Students with MRSA can come to school with no problems as long as their wounds are covered. You can't catch the disease from being around them. People are at the highest risk of getting infected if they come in direct contact with the person's wound or pus that drains from the wound.

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### **CAN I GET MRSA FROM AN INFECTED PERSON'S COUGH OR SNEEZE?**

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No. MRSA isn't like the flu; it is NOT a respiratory illness

---

### **A STUDENT AT MY CHILD'S SCHOOL WAS RECENTLY DIAGNOSED WITH MRSA, SHOULD THAT STUDENT BE ALLOWED TO ATTEND SCHOOL?**

---

Yes, as long as the student's MRSA lesion is properly covered so that people can't come in direct contact with the lesion or pus from the lesion.

---

### **CAN CLEANING A CLASSROOM PREVENT SPREAD OF MRSA?**

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NO. General classroom or school cleaning is not the answer to reducing the spread of MRSA. Floors, walls and classroom items like desks, pencils, and water fountains have not been shown to play an important role in transmitting MRSA. However, it is important to clean objects and surfaces that have come into contact with drainage from an infection.

---

### **WHAT ACTIONS CAN I TAKE TO REDUCE THE SPREAD OF MRSA?**

---



The most important thing you can do to reduce the spread of MRSA and a lot of other infections like the flu and the common cold is to wash your hands thoroughly and often. Wash your hands with warm soapy water for a minimum of 15 seconds. If soap isn't available, you can use alcohol-based hand sanitizers. It is always good practice to wash your hands after using equipment that others may have just used, like weights. If you come in contact with another person's open wound, infected skin or soiled bandages, you should also wash your hands right away.

Other personal hygiene actions like keeping cuts and scrapes clean and covered, not sharing towels or other personal items, and showering on a daily basis can reduce the likelihood of MRSA infection.

---

### **IN SCHOOL SETTINGS, WHAT STUDENTS ARE MOST LIKELY TO BE INFECTED?**

---

In North Carolina and the rest of the country, most outbreaks of MRSA in schools involve athletes participating in contact sports like football and wrestling. That's because athletes are more likely to have broken skin, which gives the bacteria an easy way into the body. They are also likely to share personal items like towels in locker room situations or come in direct contact with other athletes who may have open or draining wounds on the playing field. That's why it is particularly important that athletes and their coaches be on the lookout for MRSA symptoms and practice good hygiene when it comes to washing their hands and covering open wounds.





## ARE THERE SPECIAL ACTIONS THAT SHOULD BE TAKEN IN ATHLETIC SETTINGS TO REDUCE MRSA SPREAD?

---

**YES!**

Athletes should **not share** personal items such as towels. **No one** with open wounds or draining skin lesions should ever use whirlpools, ice tubs, saunas or hot tubs. Shower as quickly as possible after exercising, and **always shower with soap** before and after using whirlpools, ice tubs, saunas or hot tubs.

Although general environmental cleaning in the school won't reduce the spread of MRSA, there are some other things that you can do in locker rooms or gyms to reduce MRSA. Places that come in contact with bare skin, like mats or weight benches, should first be cleaned with soap and water and then disinfected with a disinfecting product after each use. Always allow for contact time or air drying per manufacturer's instructions after using a disinfecting product on items. Weight equipment that comes in contact with skin should be cleaned daily, and everyone should wash their hands after using weight equipment.

**Use a clean towel as a barrier between bare skin and surfaces like weight benches.** Get rid of equipment that is too damaged to clean. Wash towels and athletic clothes in hot water with ordinary detergent and dry on the hottest setting recommended for the fabric.

---

**MEMBERS OF AN ATHLETIC TEAM AT MY CHILD'S SCHOOL WERE DIAGNOSED WITH MRSA. THE ATHLETIC TEAM WAS TOLD TO TAKE SPECIAL PRECAUTIONS. MY CHILD IS NOT A MEMBER OF THE TEAM, AND NO SPECIAL PRECAUTIONS WERE TAKEN IN HIS CLASSROOM, WHICH INCLUDES SOME OF THE INFECTED STUDENTS. WHY IS THERE DIFFERENT ADVICE FOR THESE TWO GROUPS?**

---

Students in a classroom setting aren't going to have direct contact with an infected student's lesions. As long as a student's wounds are properly bandaged, there is little likelihood of such contact. But, athletes have more direct contact with each other – either on the playing ground or in locker rooms. They are more likely to be infected as a result.

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**HOW MANY CASES OF MRSA OCCUR IN NORTH CAROLINA?**

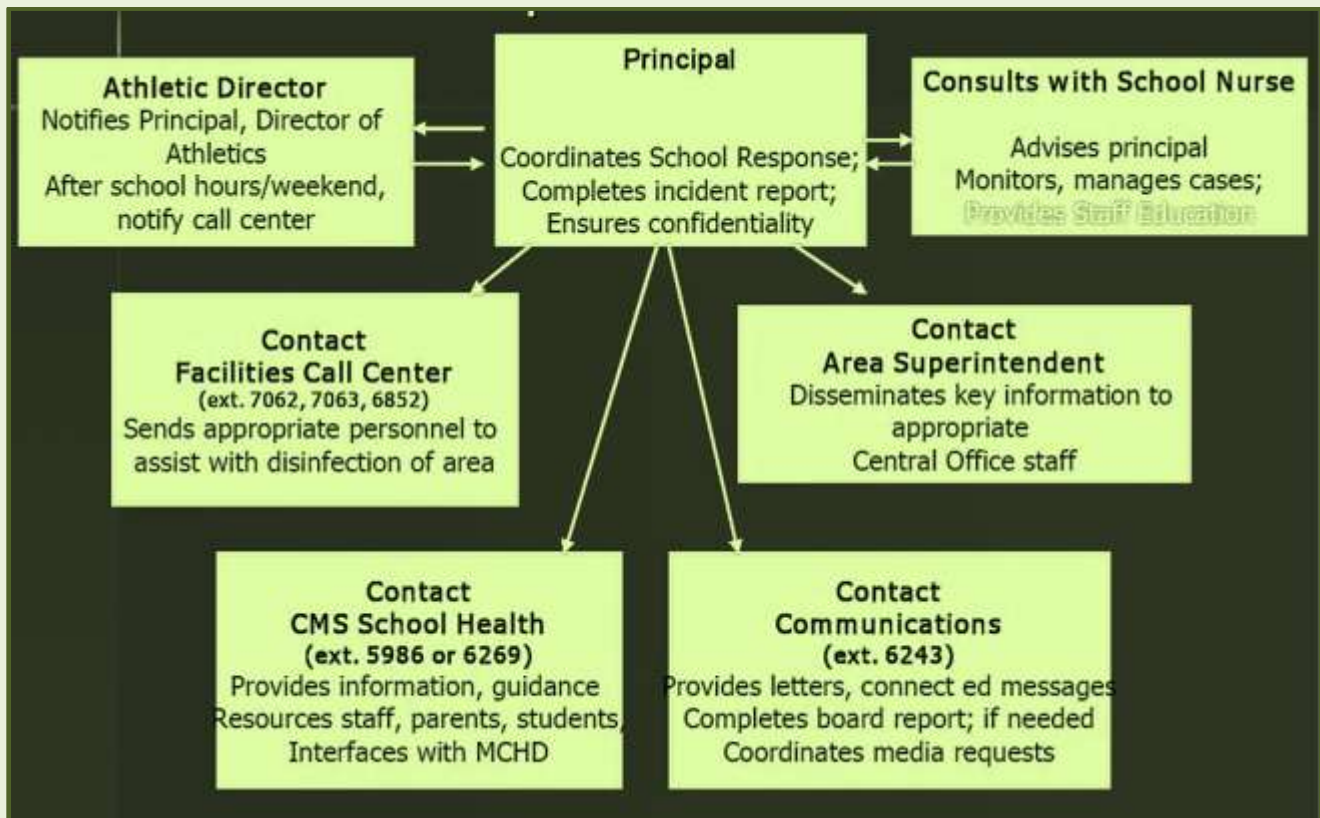
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Few states track the number of MRSA cases. That's because the disease is a fairly common infection. States also don't track numbers of other common infections like the flu.

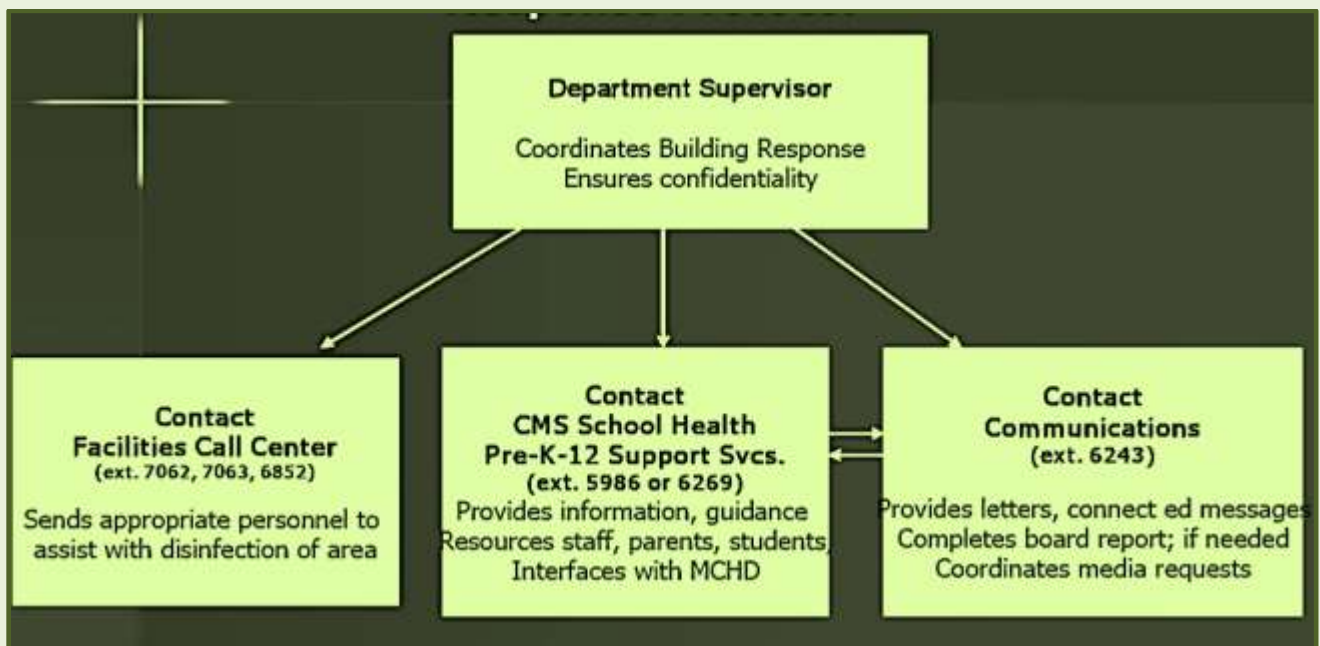
Rather than focusing on numbers, the focus should be on looking for, and treating, MRSA symptoms; another area of focus is personal hygiene – like hand washing – that can reduce spread of the disease.

# COMMUNITY ACQUIRED METHYCYLLIN RESISTANT STAPHYLOCOCCUS AUREAS (CA-MRSE) RESPONSE PROTOCOL

## SCHOOL SITES

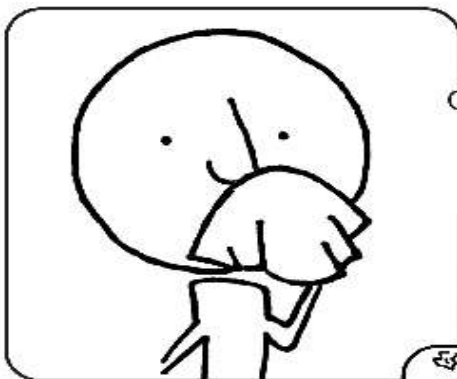


## NON-SCHOOL SITES



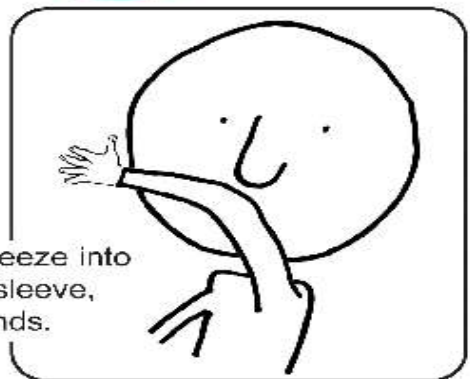
Stop the spread of germs that make you and others sick!

# Cover your Cough

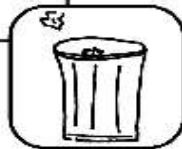


Cover your mouth and nose with a tissue when you cough or sneeze

or  
cough or sneeze into your upper sleeve, not your hands.

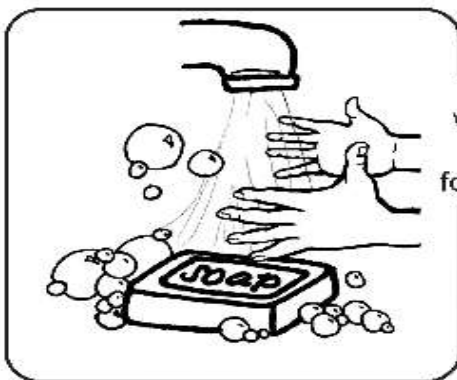


Put your used tissue in the waste basket.



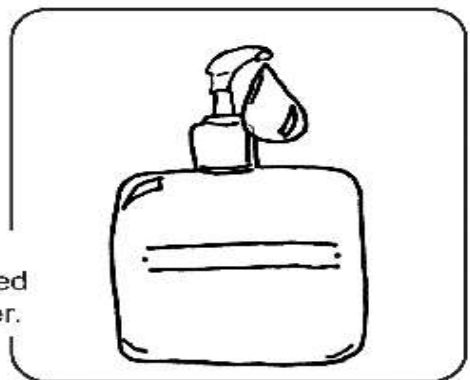
# Clean your Hands

after coughing or sneezing.



Wash hands with soap and warm water for 20 seconds

or  
clean with alcohol-based hand cleaner.



Minnesota's Department of Health  
217 SE Columbia Street  
Minneapolis, MN 55416  
612-426-6114 or 1-877-678-6414  
[www.healthstate.mn.us](http://www.healthstate.mn.us)



Minnesota  
Ambulance  
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## HOW DOES INDOOR AIR QUALITY IMPACT STUDENT HEALTH AND ACADEMIC PERFORMANCE?

The Case for Comprehensive IAQ Management in Schools

### All Children Deserve a Healthy Learning Environment

Children are inherently more vulnerable to environmental hazards because their bodies are still developing. Substandard environmental conditions in schools, such as insufficient cleaning or inadequate ventilation, can cause serious health problems for children. Evidence continues to mount demonstrating that indoor air quality, or IAQ, directly impacts student academic performance and health.<sup>1,2</sup> IAQ refers to those characteristics of the air in indoor environments that impact the occupants' health, comfort and ability to perform. Taking steps to improve the IAQ of schools is critical to bettering student health and academic performance.

### Building the Case

#### The Evidence Exists

Scientific evidence has long demonstrated an association between poor IAQ and respiratory health effects, including asthma. Maintenance issues in schools, such as insufficient cleaning or excessive use of cleaning chemicals, have been shown to trigger asthma and allergies. According to the Centers for Disease Control and Prevention, or CDC, asthma is one of the leading causes of school absenteeism.<sup>3</sup> Multiple studies have found that children's overall performance decreases with illnesses or absences from school.<sup>4,5</sup>

#### The Evidence is Mounting

Evidence demonstrating the relationship between IAQ and human performance and productivity has become more robust. Studies demonstrate that improved IAQ increases productivity and improves the performance of mental tasks, such as improved concentration and recall in both adults and children.<sup>6</sup>

### Supporting Evidence from Scientific Literature

**Managing Your School Environment Can Improve Academic Performance:** A structured maintenance program is a cornerstone of academic performance and IAQ. With tight operating budgets, school boards and administrators often consider the maintenance budget as soft money, an expense that they can cut without affecting core academic program needs. However, the literature demonstrates otherwise, with several studies finding that health, attendance and academic performance improve with increased maintenance.<sup>7,8</sup> Furthermore, schools with better physical conditions show improved academic performance while schools with fewer janitorial staff personnel and higher maintenance backlogs show poorer academic performance.<sup>9</sup>

#### Providing Adequate Outdoor Air Ventilation Can Improve Student Health and Performance:

In most schools, ventilation rates are below recommended levels.<sup>10</sup> Growing evidence suggests that improving outdoor air ventilation rates can improve student and teacher performance, increase test scores, and reduce airborne transmission of infection.<sup>11,12,13,14,15</sup> In one study, students in classrooms with higher outdoor air ventilation rates scored 14 to 15 percent higher on standardized test scores than children in classrooms with lower outdoor air ventilation rates.<sup>16</sup>

**Dampness and Mold are Associated with Asthma and Other Respiratory Illnesses:** Studies show that dampness and mold in homes, offices and schools cause a significant increase in several respiratory and asthma-related health outcomes.<sup>17,18</sup> Symptoms identified in building occupants exposed to dampness or mold include: coughing, throat irritation, tiredness, headache and increased wheezing.

*(For action steps, continue onto the next page.)*

Indoor Air Quality (IAQ)

## Establish an IAQ Management Program

### ✓ Leverage Your IAQ Management Program

Many effective school IAQ management programs are implemented in conjunction with other health programs, such as physical education, nutrition and counseling services. IAQ implementation strategies, including moisture management, integrated pest management, and adequate ventilation help control environmental triggers and interface well with asthma and other health program initiatives. Literature reflecting field experience with health programs suggests that integrating related health programs into a coordinated or comprehensive program can achieve improved results for learning and health, and be more resource efficient.<sup>1,2</sup>

### ✓ Follow a Structured Process

The *IAQ Tools for Schools* Framework provides a comprehensive approach to help maintain healthy school environments. The Framework equips schools with strategies to establish and sustain a successful IAQ management plan. The Framework is also highly flexible and adaptable allowing any school, regardless of location, size, budget, or condition to launch, sustain or invigorate an effective IAQ management program.

### ✓ Learn More About the *IAQ Tools for Schools* Program

The *IAQ Tools for Schools* Program provides a variety of products, materials and tools at no cost to help schools implement an IAQ management program. In addition to the Framework, the *IAQ Tools for Schools* Action Kit, specialized fact sheets and checklists are available to provide in-depth guidance and tools to support your IAQ management program.

## References

<sup>1</sup> Stolz, A.D., A. Knickelbein, and S. Coburn. 2008. "Linking coordinated school health to student success." *Presentation at the Annual Conference of the National Association of School Nurses*, Albuquerque, NM.

<sup>2</sup> Vinciullo, F. 2008. "The relationship between multi-component school health programs and school achievement." *Presentation at the Annual Conference of the National Association of School Nurses*, Albuquerque, NM.

<sup>3</sup> Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. *Healthy Youth!* Retrieved July 14, 2009, from CDC's Asthma Health Topics Web site: <http://www.cdc.gov/HealthyYouth/Asthma/>

Also see Akinbami, L.J. 2006. *The State of Childhood Asthma, United States, 1980-2005*. Advance Data from Vital and Health Statistics: no 381, Revised December 29, 2006. Hyattsville, MD: National Center for Health Statistics.

<sup>4</sup> Silverstein, M.D., J.E. Mair, et al. 2001. "School attendance and school performance: A population-based study of children with asthma." *Journal of Pediatrics* 139(2):278-283.

<sup>5</sup> Moonie, S., D.A. Sterling, et al. 2008. "The relationship between school absence, academic performance, and asthma status." *Journal of School Health* 78:140-148.

<sup>6</sup> For a summary of the impact of indoor environmental quality on work and school performance, as well as other IAQ research findings, see the IAQ Scientific Findings Resource Bank (SFRB) established as a cooperative venture between EPA and the Lawrence Berkeley National Laboratory: Accessible at <http://www.iaqscience.lbl.gov/performance-summary.html>

<sup>7</sup> Schneider, M. 2002. "Public school facilities and teaching: Washington, DC and Chicago." 21st Century School Fund, Washington, D.C.

<sup>8</sup> Earthman, G.I., C.S. Cash, and D. Van Berkum. 1995. "Student achievement and behavior and school building condition." *Journal of School Business Management*, 8(3).

<sup>9</sup> Branham, D. 2004. "The wise man builds his house upon the rock: The effects of inadequate school building infrastructure on student attendance." *Social Science Quarterly* (85)5.

<sup>10</sup> California Energy Commission. 1995. *Air exchange rates in non-residential buildings in California*. California Energy Commission.

<sup>11</sup> Myhrvold, A.N., E. Olsen, and O. Lauridsen 1996. "Indoor environment in schools—Pupils health and performance in regard to CO<sub>2</sub> concentrations." *Proceedings, Indoor Air '96: The 7th International Conference on Indoor Air Quality and Climate*. Nagoya, Japan. 4:369-371.

<sup>12</sup> Mendell, M. 1993. "Non-specific symptoms in office workers: A review and summary of the epidemiologic literature." *Indoor Air* 3(4):227-236.

<sup>13</sup> Seppänen, O., W.J. Fisk, et al. 1999. "Association of ventilation rates and CO<sub>2</sub> concentrations with health and other responses in commercial and institutional buildings." *Indoor Air* 9(4):226-252.

<sup>14</sup> Apte, M., W. Fisk, and J. Daisey. 2000. "Associations between indoor CO<sub>2</sub> concentrations and sick building syndrome symptoms in U.S. Office buildings: An analysis of the 1994-1996 BASE study data." *Indoor Air* 10(4):246-257.

<sup>15</sup> Shendell, D. G., R. Prill, et al. 2004. "Associations between classroom CO<sub>2</sub> concentrations and student attendance in Washington and Idaho." *Indoor Air* 14(5): 331-41.

<sup>16</sup> Shaughnessy, R.J., et al. 2006. A preliminary study on the association between ventilation rates in classrooms and student performance. *Indoor Air* 16(6): 465-468.

<sup>17</sup> Fisk, W.J., Q. Lei-Gomez, and M.J. Mendell. 2007. "Meta-analyses of the associations of respiratory health effects with dampness and mold in homes." *Indoor Air* 17(4):284-295.

<sup>18</sup> Mudarri, D. and W. J. Fisk. 2007. "Public health and economic impact of dampness and mold." *Indoor Air* 17(3):226-235.



IAQ Tools For Schools Program

For more information on this research, visit EPA's IAQ, Health and Academic Performance Web site at

[http://www.epa.gov/iaq/schools/student\\_performance](http://www.epa.gov/iaq/schools/student_performance)

Indoor Air Quality (IAQ)

# INDOOR AIR QUALITY AND STUDENT PERFORMANCE

*Submitted by Brian Kasher, CET*

Studies indicate indoor air quality (IAQ) has the potential to assist or impede the education process by affecting student's ability to learn and teacher's ability to teach. CMS participates in the USEPA Tools for Schools IAQ program which provides empowering tools for building occupants to use in identifying and resolving many IAQ issues.

## CHILDREN BREATHE MORE AIR THAN ADULTS BY WEIGHT AND ARE MORE SUSCEPTIBLE TO THE ADVERSE EFFECTS OF POOR AIR QUALITY

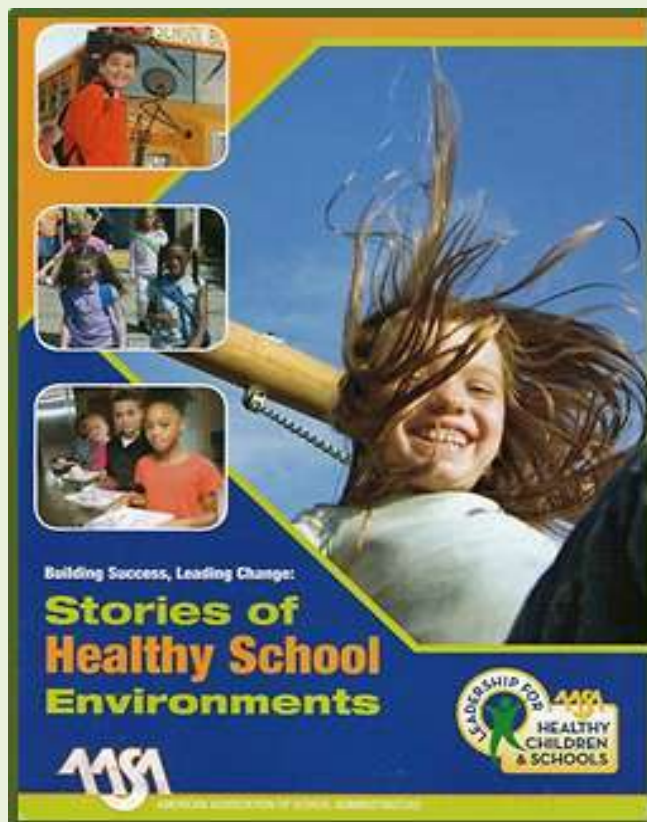
Tools for Schools kits are available free of charge to schools and include videos, informative guides, a problem solving wheel and more. A great place to start is with the teachers IAQ backgrounder and IAQ checklists available at the CMS Environmental Management website. Click here > [CMS IAQ WEBPAGE](#). The EPA IAQ and Student Performance circular details just how important air quality is to the education process.



## IAQ ISSUES HAVE BEEN LINKED TO ABSENTEEISM, ASTHMA, HEALTH AND PERFORMANCE

There are over 500,000 different chemical compounds in use today that did not exist in the past. For instance, adhesives, furniture finishes, fire retardants, cleaners, deodorants, expanding foams, insulation, solvents all which may introduce substances into the air. How many chemicals are used in your building's construction and operation?

Modern buildings are fairly tight and do not breathe like the good old farm house I grew up in. Windows, insulation, weather proofing are all much better today at keeping fresh air out and used air in. Ventilation is very important to good IAQ and keeping humidity levels in check. Did you know that the average human exhales air at or about 95% relative humidity? The moisture entering a modest middle school from exhaled breath may be measured in terms of hundreds of gallons per school day.



Issues such as elevated carbon dioxide (CO<sub>2</sub>), elevated relative humidity and odors are most common. CO<sub>2</sub> is not a hazard itself at high IAQ levels. CO<sub>2</sub> is used as a proxy for other problems because it is cheap and easy to sample. When CO<sub>2</sub> levels are high, other problematic compounds may be reaching high levels also. As a general rule, if CO<sub>2</sub> is within the American Society for Heating and Air Conditioning Engineers (ASHRAE) limits, the incidence of IAQ complaints are minimized. Ventilation, either passive or mechanical, controls CO<sub>2</sub> levels in occupied spaces.

Human factors play a significant role in IAQ. After all, it is only a problem if people are having issues. Human factors include issues ranging from perfume or aftershave triggering an asthma attack, to one person's susceptibility to an allergen not bothering others, to tampering with HVAC equipment.

Resolving IAQ issues is both a science and an art. With a little help from your friends, you too can resolve IAQ issues without bringing in expensive testing companies. Testing companies always seem to go away when the money is gone. Nevertheless, our students and staff still need our help.

The USEPA program, IAQ Tools for Schools (TFS) helps schools with IAQ. This voluntary program uses school staff and in some cases, students to resolve IAQ issues.

Charlotte Mecklenburg, Wake County and other North Carolina schools are making use of the TFS program. For more information, check TFS website: <http://www.epa.gov/iaq/schools> or visit the Environmental Management Website at the link below.



**CMS is recognized by the USEPA Tools for Schools Program as a National Model of Sustained Excellence and has been named National Mentor of the Year. CMS staff serve as faculty to the USEPA Tools for Schools Program**

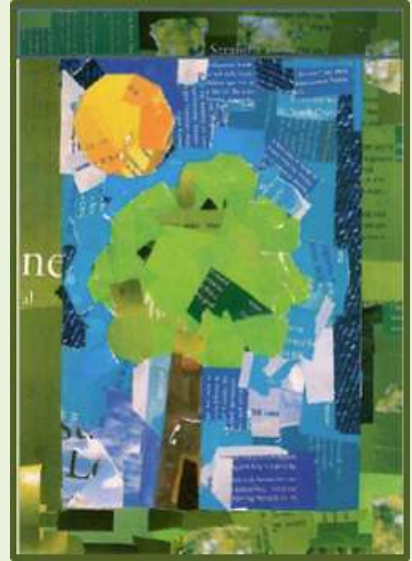
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## MOLD AS PART OF THE ENVIRONMENT

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Mold issues have the potential of costing school districts thousands of unplanned maintenance dollars, disruption of academic activity and mistrust in the community. Many routine maintenance service requests are now being elevated to mold status: odors, carpet or ceiling tile stains and others. What can a school district do to prevent costly mold clean-ups and adverse press attention? One answer is a Mold Operations and Maintenance (O&M) program.

USEPA and OSHA both have manuals discussing building operator mold response. Mold O&M consists of staff training, facilities inspections for moisture issues, response actions, established procedures, prompt repair of moisture issues, record keeping, and outsourcing large response.



There are no federal training accreditation programs for mold. Training provider certifications may tie to an industry group program or may be in-house developed training. Most private sector mold training focuses on remediation and does not promote proactive management practices that assist in reducing mold growth. I once attended training where one slide read, "MOLD IS GOLD". There is more profit in mold remediation for the "mold is gold" industry, than there is in sharing basic methods of mold prevention.

EPA promotes spending school district resources proactively preventing and or cleaning-up mold more than on sampling mold: if you can see it, clean it up. I listened to an attorney once explain how she stopped practicing law to make more money in mold inspection. One example she provided was where she collected over \$30,000 in samples in a couple of days at a senior citizens facility. However, this sampling was of little value as all it told was that the senior's home had mold. The \$30,000 could have been applied to cleaning up the problem they already knew they had. "Where visible mold is present, cleanup can proceed on the basis of the visual inspection. Sampling for molds and other bioaerosols is not usually necessary." US Department of Labor OSHA 3304-04N 2006.

After large-scale mold clean-up it is advisable to have samples collected. However, samples should be collected both inside the work area and outside of the building. There are no legal standards for the interpretation of mold samples. However, a generally accepted benchmark is the amount of mold in the air outside the building at the time of the sampling inside the building. After all, if the air inside of the building has less mold of similar species than the air outside, the inside environment is at least as safe as the outside air in terms of mold.

Watch out for what I call the Mold is Gold trap. This is where a mold inspector collects air samples inside a building during an inspection, but not outside. The report then shows a finding of mold which leads to more costly sampling or remediation. It should be no surprise that mold will be found in a school air sample. It should be more suspect if an air sample does not contain any mold. It is hard science that mold will be found at some level in almost every environment on earth. The question is not will mold be found in an air sample, the question is how does it relate to the level outside the building being tested!



# **EHS 101- SUSPECTED MOLD RESPONSE FACT SHEET**

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The information below is compiled from Occupational Safety and Health Administration (OSHA), United States Environmental Protection Agency (USEPA), and North Carolina Health and Human Services guidance documents. In an effort to reduce the potential for exposure to mold at CMS facilities, Building Services has provided mold /indoor air quality training to over 700 maintenance, custodial and property management staff. School academic staff are not to respond to suspected mold growth. The school office will notify Building Services for response when needed

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## **WHEN IS MOLD A CONCERN?**

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If mold can be seen or smelled, it is a concern to Building Services. However, most every environment contains mold at some level. Mold is a necessary and common element in the environment. However, if too much moisture gets into a building from a roofing leak, malfunctioning air conditioning system or flood it is possible for mold growth to amplify into conditions which need to be addressed. Moisture control is the key to preventing and controlling mold problems in our schools and in our homes.

Although there are no regulatory standards in effect or proposed for Mold in North Carolina, the CMS standard of care is, "If you can see it, it shouldn't be there." If you see it, report it to the main office. The main office will enter or call in a report initiating response from Building Services.

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## **WHAT ARE THE HEALTH EFFECTS OF MOLD**

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Health effects of exposure to indoor mold can range from mild or none to severe. Susceptibility to the effects of mold varies from person to person and may depend on an individual's own health. Allergic responses or allergy-like symptoms, such as irritation of eyes, nose and throat, runny nose, and rashes, are the most common reactions. Although rare, asthma attacks, hypersensitivity pneumonitis or infections are possible. CMS recommends that anyone concerned they may have health problems, see a medical professional experienced in such matters. However, it should be noted that a doctor cannot diagnose a building, or pinpoint a source from the Doctor's office.

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## **SHOULD A SCHOOL INVESTIGATE A MOLD CONCERN?**

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Academic personnel should not conduct mold investigation or response. CMS has institutionalized and prioritized mold, and more generally, indoor air quality response. The procedure is to report excessive moisture issues or suspected mold to the school's main office. It is possible to unintentionally spread mold to other areas of the school, so it is very important that response be left to Building Services personnel.

Government agencies such as the USEPA and OSHA do not recommend mold testing during the initial response to a potential mold problem. The current recommendation is to invest resources in cleaning up issues as opposed to testing. CMS considers any active or visible mold growth a problem that should be properly and promptly corrected and therefore does not require mold testing to trigger a response.

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## **MOLD RESPONSE**

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Building Services has two methods of response to potential mold issues. If it is possible to determine the root cause of the issue, the Call Center will forward the issue to the appropriate shop for response: (roofing, carpentry, plumbing or HVAC). If the Call center or the Shop cannot identify the root cause of the issue, the Environmental Management Department will conduct a survey of the subject area to determine appropriate response actions. The goal of all Environmental Management mold investigations is to first identify the root causation of the growth, determine how best remove the growth and then complete the clean-up with as little disruption to the educational process as possible.

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### **SHOULD THE SCHOOL BE EVACUATED WHEN MOLD IS FOUND?**

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It is normal and expected to find some mold in all but the most highly conditioned and sensitive indoor environments (e.g. special laboratories, hospital clean rooms). When mold growth is found, there are a number of factors that will determine whether to isolate the area and or move occupants.

It is the responsibility of the environmental management department, to determine if isolation or some other form of control is needed for areas beyond routine Building Services response. CMS Environmental Management will provide guidance based considerations including, but not limited to:

1. Is the suspect material mold?
2. Where is the growth? Mechanical Room, Nursery, Kitchen, Locker Room...?
3. What is the root causation of the growth?
4. What is the size of the colonization 3 inches? <10 square feet? All surfaces in a room?

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### **HOW SHOULD A MOLD PROBLEM BE CORRECTED?**

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It is ultimately up to the CMS Environment Health and Safety Office in association with Building Services to determine what is needed to resolve any real or perceived mold problem in a school.

The presence of mold growth in a school is a sign of underlying issues with design, operation, or maintenance leading to moisture events such as a water pipe breaking or failing insulating.

In most cases, when small amounts of mold growth are found, local trained custodial staff should be able to remove the mold by carefully following the CMS mold response protocol. CMS uses an EPA registered disinfectant and fungicide to treat mold growth. Hard surfaces generally may be cleaned. However, when semi-porous or porous materials have been impacted by mold it is most often necessary to dispose of them.

When contamination is extensive or beyond the abilities of CMS Building Services staff, CMS will contract outside remediation professionals to complete the operations and return the subject areas to occupancy condition.

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### **YOUR ASSISTANCE PLEASE!**

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Please promptly report mold growth to your school's main office. Your assistance with this matter will assist in the overall CMS approach of keeping our schools safe for students, staff and the public.

## CMS GREEN CLEANING

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CMS Custodial Services takes pride in providing clean and safe learning environments. Custodial Services staff uses Green Seal Certified cleaning products in excess of 1.1 million gallons annually. Green cleaning is both healthier for occupants and CMS custodial staff. One of the benefits of green cleaning chemicals is the elimination of scents which can be asthma triggers or upper respiratory irritants to some building occupants.



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### WHAT IS GREEN CLEANING?

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Green cleaning is defined as cleaning to protect health without harming the environment. A Green cleaning program goes beyond chemical and equipment choices. It includes policies, procedures, training and shared responsibility efforts that minimize the impact of cleaning materials on the health of building occupants and protect the environment as a whole.

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### GREEN CLEANING CHEMICALS

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The number of cleaning chemicals in use by CMS has been reduced from twelve to four. Cleaning products are dispensed through a dilution system reducing the amount of water used, resources necessary for packaging, transportation costs and eliminates the need for staff to handle the more harsh cleaning chemical concentrates. One example is the change from caustic floor-stripping chemicals. CMS converted to green technology eliminating the use of more than 17,000 gallons of caustic emulsifiers annually.

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### GREEN CLEANING EQUIPMENT

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Custodial Services is also converting custodial equipment to more environmentally friendly options as well. Vacuum cleaners with HEPA filters that catch tiny airborne particulate and battery operated burnishers that do not exhaust greenhouse gases from petroleum based fuel combustion are examples of such technologies.

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### GREEN CLEANING IMPROVES ACADEMIC ENVIRONMENT

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Choices in cleaning products, equipment and procedures also dramatically impact the lifespan of building materials and furnishings while preserving the environment. CMS Custodial Services staff prides itself in trying to provide students and staff with the most environmentally friendly learning environment possible.



# THE SWITCH TO GREEN CLEANING

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*Adapted from Stales Advantage Case Study Circular*

CMS is committed to providing its students with a superior education, and maintaining its facilities is critical to achieving that mission. With more than 170 schools, plus several administrative buildings and gymnasiums, CMS was purchasing large volumes of cleaning supplies. The extensive variety of cleaners were posing two major problems: 1) they were extremely costly, particularly when examining the dilution rate and the price per use; and 2) the supplies were challenging to mix and dilute, resulting in unusable solutions and substantial product waste.

As a result, CMS decided to investigate alternative cleaning supplies and published a request for proposal (RFP). CMS wanted to condense cleaners to four main items: a neutral cleaner, glass cleaner, bathroom cleaner and disinfectant. While price was a key criterion, the items also needed to be environmentally friendly and easy to dilute.

In addition, the vendor of choice had to be able to quickly deliver the products and train CMS' staff on product usage, as they aimed to implement 600 cleaning solution dispensing systems before the start of the new school year.

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## THE SOLUTION

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CMS extended the RFP to current suppliers, which included Staples, as CMS was already purchasing select supplies through the company. Staples had an existing, strong relationship with CMS' facilities group and as part of the RFP process made an initial presentation to demonstrate recommended cleaning products and the cost-per-gallon versus the cost-per-use.

While CMS requested four key cleaning products, Staples was able to meet their requirements with just three products from its Sustainable Earth line. Safe and environmentally preferred, each of the products also had high dilution rates, designed to reduce waste and lower end-use costs. For example, one gallon of Sustainable Earth Neutral Multi-Use Cleaner (SE64) has a dilution rate of 1:256, resulting in 257 gallons of ready-to-use, all-purpose cleaner when mixed with water.

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***“WE WANTED PRODUCTS THAT WOULD REDUCE THE NEGATIVE IMPACT OF CHEMICALS ON USERS AND THE ENVIRONMENT, BUT IT WAS ALSO CRITICAL THAT THE PRODUCTS WERE EFFECTIVE. WHILE WE CONDUCTED AN EXTENSIVE COST ANALYSIS DURING OUR VENDOR EVALUATION, IT REALLY CAME DOWN TO HOW WELL THE PRODUCTS WORKED. WITH STAPLES, IT WAS THE IDEAL OUTCOME - THE PRODUCTS WERE COST AND ENVIRONMENTALLY FRIENDLY AND PERFORMED TO OUR HIGH LEVEL OF STANDARDS.”***

RUSTY FULLER, CMS CUSTODIAL SERVICES MANAGER

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CMS tested each of Staples' recommended products, which would be used on a daily basis, in real-life cleaning situations. Previously, CMS' janitorial staff based product effectiveness on smell – if the product had a strong aroma, employees assumed it was working. During the testing phase, CMS was impressed that the Sustainable Earth products had a very low odor and no lingering chemical smells, yet were extremely effective.

Staples was awarded the account due to its products' impressive performance, cost-effectiveness and environmentally responsible ingredients. The Staples team quickly went into action, installing 300 ExpressMix® dispensing systems and 300 custom-built units for the Neutral Multi-Use Cleaner. Staples trained CMS' staff on safe dilution, dispensing and usage processes, however, the Sustainable Earth dilution system made the measurement and mixing process truly effortless.



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### THE RESULTS

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As a result of using Staples' Sustainable Earth products and consolidating to three cleaning solutions across 170 schools, CMS has reduced cleaning supply costs by 20 percent, with over \$30,000 saved in the first year alone. In addition, the increased accuracy of product dilution methods has allowed CMS to dramatically reduce chemical waste. The school district is also participating in an eco-friendly, "go green" program, leveraging its experiences with Staples' Sustainable Earth line.

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### THE FUTURE

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Staples' contract with CMS was recently renewed and both parties anticipate a long-term partnership that continues to deliver great benefits.



# SCHOOL INTEGRATED PEST MANAGEMENT (IPM)

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## What is IPM?

Integrated pest management (IPM) considers the interactions between people and the pest to resolve the pest problem with the lowest overall risk to people's health and the school environment. IPM looks beyond exterminating the pest and the use of preventative regularly scheduled pesticide applications. IPM considers factors that allow pests to become problems in the first place and uses a combination of cultural, physical, biological and chemical pest management strategies.

The purpose of the CMS Integrated Pest Management (IPM) program is to control pests safely, effectively and reduce exposure of school children and school occupants to pesticides. Integrated Pest Management is a comprehensive approach to pest management that combines biological, physical, chemical, and cultural tactics to prevent and solve pest problems. The emphasis of IPM is on pest prevention. CMS practices IPM on a district-wide basis.



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## HOW DO I SUSTAIN IPM AT MY SCHOOL?

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### CMS STAFF ROLES IN THE IPM PROGRAM

**Principal(s)** are responsible for designating and IPM contact for their site(s). The contact shall be either an assistant principle or the administrative secretary.

**School IPM Contacts** are the local points of contact for IPM information and reports at the school level. The IPM Contact will maintain a log of pest sightings and communicate with IPM Technicians and the IPM Coordinator as needed. The School IPM Contact shall be responsible for informing and educating all site staff about methods for reporting pest observations at one staff meeting per year.

**School Occupants** including staff and students are responsible to: clean up food leftovers, store snacks properly in pest-proof containers (for example, plastic containers with tight-fitting lids), and maintain uncluttered and clean classrooms, cubbyholes, lockers, and other storage areas; follow IPM guidelines for reporting pest problems. For example, promptly report pest sightings to the IPM School Contact; report conditions that are conducive to pest survival in the building (leaky faucets, damaged trash can lids, etc.); DO NOT apply pesticides in the school or classrooms.

**Child Nutrition Staff** are responsible for understanding the importance of and implement good sanitation, kitchen management, and proper food storage in successful pest management.

- Child Nutrition staff shall:
- Recognize, locate and eliminate pest harborage areas
- Record pest problems and pest-conducive conditions in the logbook
- Store food in pest-proof containers
- Reduce the availability of life-sustaining resources by thoroughly cleaning the kitchen, equipment, and utensils, removing garbage promptly, etc.
- Remove surplus equipment from the food service areas and premises promptly (This equipment can harbor pests)
- Leave pesticide applications to trained and certified pest management professionals
- Child Nutrition staff shall not apply pesticides
- Attend periodic IPM training including staff meeting sessions

**Custodial Services staff** are responsible for:

- Reporting the incidence and location of pest problems.
- Recognizing and reporting pest-conducive conditions, such as water leaks and potential pest entry points into buildings.



- Correcting many of the conditions that may lead to pest problems, such as substandard sanitation practices, broken windows, loose baseboards, doorways, etc.

- Attending periodic IPM training including staff meetings.

**Maintenance staff's role** in the IPM program is to report or remove pest-conducive conditions observed in facilities enhancing the effectiveness of the IPM program.

**IPM technicians** are to engage in the responsible performance of pest control duties

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### **THE MOST IMPORTANT STRATEGY IS COMMUNICATION**

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The most important strategy is communication and cooperation among school officials, teachers, staff, custodians, and parents. How people use and manage a school determines the pest problems that will occur. IPM emphasizes regular inspections and monitoring to detect pests before they become a problem, making it easier to manage them in less toxic ways. Inspections, information on the pest's life cycle, setting action thresholds, and information on how the school facility is used determine when and what action is taken. IPM's flexibility to

adapt to any pest problem is what makes it work. IPM does not rule out the use of pesticides. Pesticide use is weighed against other less toxic and more permanent methods.

### Criteria for selecting a treatment strategy are

- Least hazardous to human health
- Least disruptive of natural controls
- Least toxic to non-target organisms
- Most likely to be permanent
- Easiest to carry out safely and effectively
- Most cost-effective
- Most site-appropriate



Four common types of control strategies that remove a pest's food, water, and shelter, and limit its access into and throughout buildings and on school grounds include:

**Cultural control** is a preventative measure using fertilization, plant selection, and sanitation to exclude problematic pests and weeds.

**Physical control**, or pest exclusion is another preventative strategy. It includes creating barriers; modifying conditions such as temperature, light and humidity; trapping; and manually weeding.

**Biological control** makes use of a pest's natural enemies. This strategy introduces beneficial insects or bacteria to the environment or, if they already exist, provides them with the necessary food and shelter and avoids using broad-spectrum chemicals that will inadvertently kill them.

**Chemical control** is used after all other control strategies are deemed inappropriate or ineffective. Target-specific, low-toxicity pesticides should be applied in a manner that will maximize the effectiveness of pest management and minimize the exposure to humans and other non-target species. Spot treat if possible to reduce exposure.



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### IPM QUICK TIPS:

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- The problem or pest is identified before taking action.
- Vegetation, shrubs and wood mulch should be kept at least one foot away from structures.
- Cracks and crevices in walls, floors and pavement are either sealed or eliminated.
- Lockers and desks are emptied and thoroughly cleaned at least twice yearly.
- Food-contaminated dishes, utensils, surfaces are cleaned by the end of each day.
- Garbage cans and dumpsters are cleaned regularly.
- Litter is collected and disposed of properly at least once a week.
- Fertilizers should be applied several times (e.g., spring, summer, and fall) during the year, rather than one heavy application.
- If pesticides are necessary, use spot treatments rather than area-wide applications.



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## BENEFITS

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- Provides long term results
- Environmentally friendly
- Reduces unnecessary chemical use
- Reduces risk of pesticide resistance
- Proactive, not reactive
- Detects a potential pest problem before it's a major problem
- Provides a written record of pest activities and control actions
- Promotes a better school/community relationship
- Site-specific



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## BARRIERS

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- Requires everyone, even students, to take an active role
- Requires more skill and knowledge than traditional pest control
- Additional paperwork and communication
- Requires on-going staff training and certification
- Requires persistent attention

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## TO FIND MORE INFORMATION ON INTEGRATED PEST MANAGEMENT VISIT

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Click the IPM Hyperlink here>>> [CMS IPM PROGRAM](#)



## STORM WATER-OUR WATER

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Recognizing the importance of storm water management, CMS has joined with Mecklenburg County and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville in the National Pollutant Discharge Elimination System (NPDES) joint permit. The NPDES joint permit covers storm water discharge directly to creeks and lakes.

CMS staff receives storm water training assisting in both operations and management controls; participates in inspecting and labeling storm water drains; implements storm water pollution prevention plans (SW3P) including spill response procedures, manages storm water runoff at construction sites, is working with Mecklenburg County Storm Water Services to distribute storm water related information through schools and is working to develop volunteer opportunities.

### HOW YOU CAN HELP IMPROVE WATER QUALITY

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*Submitted by Charlotte Mecklenburg Storm Water Services*

There are many regulations in place for large facilities like Charlotte-Mecklenburg Schools (CMS) to protect surface waters. CMS maintains over 70 storm water structures that control runoff from schools. These structures keep pollution from reaching the surface waters. CMS also has pollution prevention plans to make sure that all CMS workers know how to properly clean-up spills and keep things like oil and fuel out of the storm drain system.

Households in Mecklenburg County do not have the same rules to prevent pollution from everyday activities. Learning how you can make a difference is the first step in protecting water quality in our surface waters.

#### 1 Find your watershed address

Do you know what watershed you live in? With nearly 3,000 miles of creeks in Mecklenburg County your school is closer to a creek than you might think. What you and those around you do on the land impacts the quality of our water.

To understand how easily we can affect our water, it is helpful to understand how water collects. Water runs downhill and drains into creeks, lakes, and rivers. The area of land that all drains to one point is known as a watershed. Watersheds are the places we call home, where we study and where we play.

What does that have to do with you? It means stopping water pollution before it begins in your own backyard or schoolyard.



## 2

### Change one behavior that impacts water quality

How could what you do in your schoolyard affect water quality? At any point along its journey rain or runoff can be contaminated by everyday activities. Consider your daily habits and choose one that you could change to protect water quality.



#### YARD CARE

- At home you can test your soils before applying fertilizers and lime. Call 704-336-2455 to request a free soil test kit
- Prevent litter before it goes to the storm drain. e Adopt-a-Stream Program

#### CAR CARE

- Collect used oil in a reusable, re-sealable container
- Take used oil and filters to a recycling center
- Visit [www.wipeoutwaste.com](http://www.wipeoutwaste.com) for a location near you

#### KITCHEN GREASE

- Freeze animal fats in a can and dispose of in a trash receptacle
- Mix liquid vegetable fats with an absorbent material, such as cat litter or coffee grounds, and place in a lidded container and dispose of in a trash receptacle

#### PET WASTE

- Pick up after your pet every single time
- Throw away pet waste in the garbage; never wash it into the gutter or storm drain

**ONCE YOU HAVE MADE A CHANGE IN A DAILY HABIT, CONSIDER TAKING A LEAP TO VOLUNTEER YOUR TIME TO PROTECT LOCAL CREEKS AND LAKES.**

## 3

### Volunteer to Help Improve Water Quality

Citizen involvement is an integral part of the Storm Water program. With so many creeks and lake shorelines in Mecklenburg County, we rely on citizens to be our eyes in the field. Storm Water Services has six volunteer programs available to citizens, offering opportunities to make a long term commitment to your school or neighborhood creek. Volunteer a couple of hours a year or simply take the time to report unusual stream conditions. Whichever you choose, your actions are helping to protect our region's most valuable natural resource.



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## CREEK RELEAF

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The newly established **Creek ReLeaf** Program is a collaborative effort of Charlotte- Mecklenburg Storm Water Services, Charlotte Public Tree Fund, the Center for Sustainability at Central Piedmont Community College, and the Sierra Club Central Piedmont Group to plant trees in floodplain and stream buffers of Mecklenburg County.

In the past two years, over 800 volunteers have planted 5,000 tree seedlings in the McDowell Creek floodplain in Huntersville.

Find out how you can participate in the 2010 tree planting by visiting [www.creekreleaf.com](http://www.creekreleaf.com).



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## BIG SWEEP

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**Big Sweep** is another one day event that encourages wide scale participation. On the first Saturday of October each year volunteers spend four hours pulling trash out of local waterways. Big Sweeps cleaned sections of six local creeks and miles of Mecklenburg shoreline of Mountain Island Lake in 2009. They removed over 7 tons of trash, including 39 tires, 1 refrigerator, 7 shopping carts, and 1 TV.



In its pilot stage, **volunteer monitoring** began in 2009. This program includes the collection of qualitative and quantitative water quality data by volunteer groups at specific stream segments to monitor and assess local stream health. To date this program has ten groups participating, and is taking off very well. Local schools are very interested in the program, and those involved plan to have a panel of students present their results to Water Quality staff at the end of the school year.

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## ADOPT-A-STREAM

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The **Adopt-a-Stream Program** is Storm Water Services longest running volunteer program. Since 1989, volunteers have been getting in the creeks to remove the most visible type of water pollution, trash! Individuals, families, organized groups, schools, businesses and industry “adopt” their favorite stream sections and are responsible for walking these sections a minimum of two times a year. The Adopt-A-Stream program has become a major community education and involvement activity and has proven to be tremendously effective at protecting and improving the water quality and aesthetic conditions of Charlotte’s streams. In 2010, volunteers completed 114 clean-ups removing over 23,000 pounds of trash from local waterways.



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## STORM DRAIN MARKING

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The **Storm Drain Marking Program** is a reMARKably easy way for residents of all ages to get directly involved in reducing the amount of pollution in our streams and lakes. Volunteers receive a kit with markers, instructions and all the supplies needed to mark the storm drains in their neighborhood with the message of “Do Not Dump, Drains to Creek.” While it won't solve all our water pollution problems alone, the highly visible marker is a practical and easy first step toward public education and active involvement in storm water pollution prevention. In 2010 volunteers marked over 3,100 drains! Are your school’s storm drains labeled?



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## BE A WATER WATCHER

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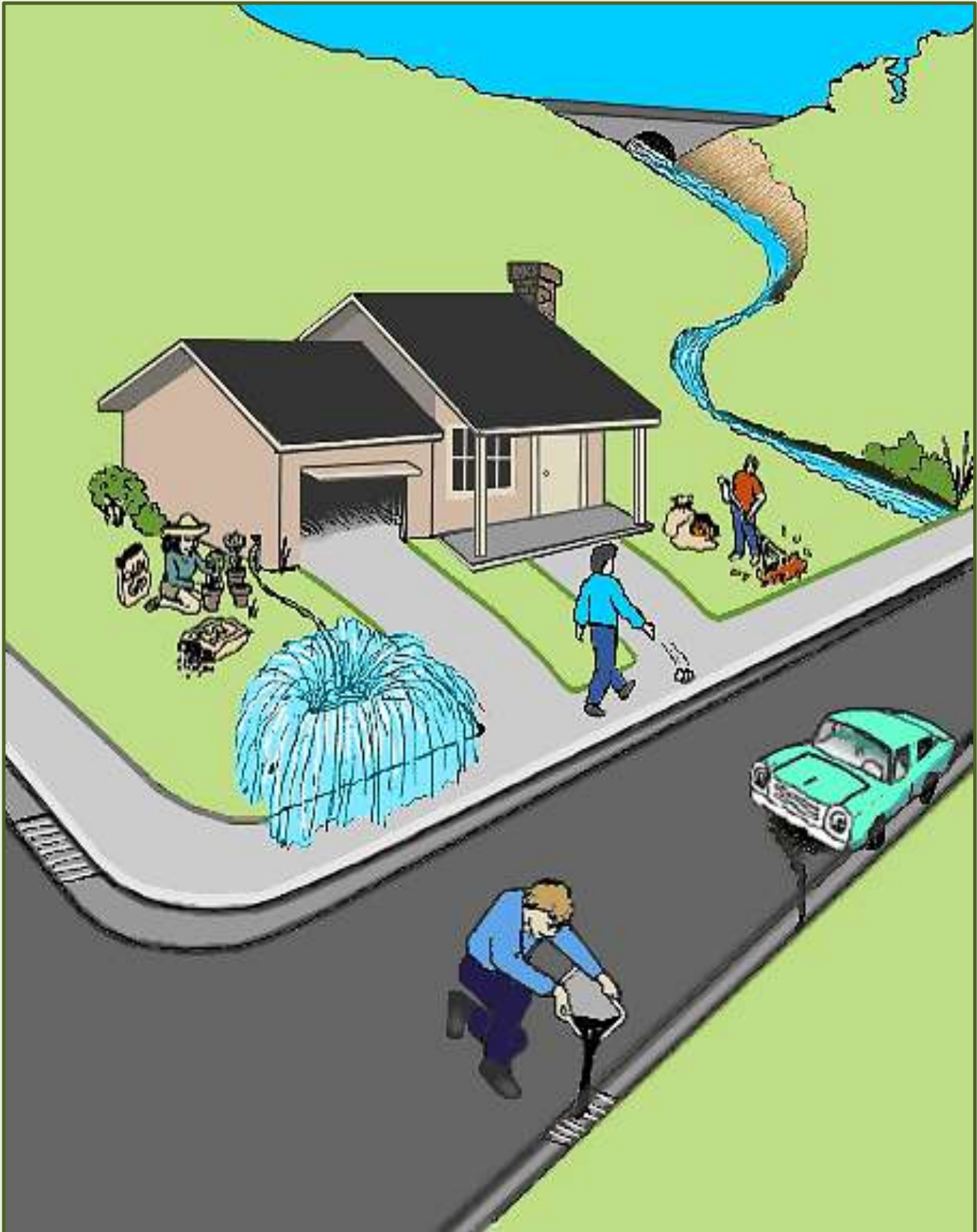
Storm Water Services relies on citizens to alert us of unusual conditions in our creeks and lakes. Most of you live near a creek or drive past one every day on your way to school. Be a **Water Watcher**, if you notice a strange odor or color in the creek, you can call 311 to alert of us of the problem. A staff member will go investigate your complaint and find the source of the pollution.

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**TO FIND OUT MORE ABOUT STORM WATER PROGRAMS, CLICK**  
[HTTP://STORMWATER.CHARMECK.ORG](http://stormwater.charmeck.org) **AND VOLUNTEER**

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## WHAT IS WRONG WITH THIS PICTURE?



(Solution on next page)

## WHAT IS WRONG WITH THIS PICTURE? SOLUTION

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- **THE SPRINKLER IS WATERING THE SIDEWALK!**

Place sprinklers so that the water goes ONLY on the lawn instead of watering the street or sidewalk. Water the lawn or garden during the coolest part of the day, such as early in the morning, to reduce evaporation and increase the amount of water that gets into the soil and reaches the plants' roots. Do not water on windy days; sprinkles will be blown away and wasted.

- **THE ADULT IS POURING MOTOR OIL DOWN THE STORM DRAIN!**

Motor oil or antifreeze can damage or kill underwater plants and animals. Never pour used motor oil or antifreeze down a storm drain, onto the soil or into a waterway. Put used oil or antifreeze in a sturdy container and take to a service station or other approved center

- **THE CAR IS LEAKING OIL AND ANTIFREEZE INTO THE STREET!**

Oil and antifreeze that leaks out of cars is washed into storm drains when it rains. Check your cars for drips and leaks. If you find any, ask whoever is responsible for the car to have them fixed soon!

- **THE ADULT IS THROWING LITTER INTO THE STREET!**

Street litter, such as plastic bags, cups and candy wrappers often gets swept away with rain water into storm drains and ends up floating in the ocean or washing up on our beaches. A great deal of street litter is made up of plastic, which takes hundreds of years to break down and become harmless to the environment. Marine animals can mistake plastics for food and can become tangled up in it.

- **THE ADULT IS RAKING GRASS CLIPPINGS AND LEAVES INTO PLASTIC BAGS!**

Leave mowed grass clippings on the lawn as a source of nutrients for the grass, and to reduce erosion. You can also compost grass clippings and fallen leaves, and later use the compost to fertilize the soil. Remember, the more that goes into your compost pile, the less that goes into the already overcrowded landfill!

- **THE ADULT IS USING FERTILIZER AND PESTICIDE IMPROPERLY!**

Fertilizers contain large amounts of nutrients such as nitrogen and phosphorous that can wash into lakes and streams, and may cause algal blooms (overgrowth of aquatic plants that smother other aquatic life). These blooms use up the oxygen in the water that fish and other organisms need to breathe. Pesticides (substances that kill bugs and animals) and herbicides (substances that kill weeds and plants) also contain toxic materials that are harmful to humans, fish, and "good" plants. When it rains, these toxic materials can run off into storm drains, roadside ditches, and nearby waterways. Use fertilizers and pesticides properly. Ask to have your soil tested to determine the right amount and type of fertilizers you need. Never apply fertilizers before it is supposed to rain. Use organic fertilizers such as manure, mulch, or compost (see the page on proper disposal of yard wastes). Landscape with native plants (see page on Stream Bank Erosion prevention) that require less water and fewer pesticides.

# NONPOINT SOURCE POLLUTION AWARENESS

From: <http://www.epa.gov/owow/nps/kids/word.html>

The United States has made tremendous advances since Congress passed the *Clean Water Act of 1972* to clean up the aquatic environment by controlling pollution from industries and sewage treatment plants. Today, nonpoint source pollution remains the nation's largest source of water quality problems. Sometimes referred to as polluted runoff, nonpoint source pollution occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants, and deposits them into surface waters or introduces them into ground water. The most common nonpoint source pollutants are sediments and nutrients. Other common nonpoint source pollutants include pesticides, pathogens, salts, oils, and excess fertilizer.

***The watershed approach is the preferred way to restore a stream, river, or lake.*** It looks beyond the water body itself and examines the entire drainage area, including all the potential sources of pollution that drain into it. Water conservation uses practices and technologies that limit water use in the bathroom, kitchen, laundry room, lawn, driveway, and garden. Conserving water reduces the demand on existing water supplies and limits the amount of water that runs

off the land. Runoff should also be minimized by using low impact development (LID) techniques, which work with the natural landscape and native plants to soak up more rainwater by improving infiltration. Low impact development solutions include rain gardens and green roofs, which treat rainwater as a precious resource. Other ways to control polluted runoff include erosion control techniques such as silt fencing around construction sites, establishment of riparian (vegetated) zones next to water bodies to filter out pollutants and xeriscape landscaping, which incorporates native plants that minimize maintenance needs. Finally, many local groups organize volunteer monitoring efforts, which provide information that can help government agencies understand the impacts of nonpoint source pollution and solve problems. Working together, we can all make a difference.



### CAN YOU FIND THESE WORDS?

- |                 |            |               |            |
|-----------------|------------|---------------|------------|
| Nonpoint Source | Low Impact | Conservation  | Fertilizer |
| Runoff          | Erosion    | Environmental | Pesticide  |
| Watershed       | Riparian   | Water         | Sediment   |
| Monitoring      | Xeriscape  | Pollution     | Nutrients  |
| Rain Garden     |            |               |            |

### CROSSWORD ANSWERS FOR P. 131

| ACROSS        | DOWN           |
|---------------|----------------|
| 1. Durable    | 2. Bulk        |
| 7. Reuse      | 3. Environment |
| 8. Compost    | 4. Trash       |
| 10. Donate    | 5. Earth       |
| 11. Batteries | 6. Recycle     |
|               | 9. Reduce      |



# INGERSOLL RAND STUDENT SUSTAINABILITY INSTITUTE

*Submitted by Holly Emerson*

Rising high school seniors from five counties in the Charlotte area participated in this year's Ingersoll Rand Sustainability Institute, which took place July 12 - 16. In its second year, the Sustainability Institute is an interactive program designed to teach students how businesses balance the demands of economic, environmental and social performance drivers, known as the triple bottom line.



The Sustainability Institute emphasizes leadership, teamwork, critical thinking, effective communication, and independent research through roundtable discussions, group projects and field trips. Students stayed in chaperoned dormitories at Davidson College. During the weeklong program, participants toured a Leadership in Energy and Environmental Design (LEED)-certified facility featuring a rooftop photovoltaic system, participated in roundtable discussions and benefited from a learning session with Burt's Bees' Steve Walker, manager of environmental sustainability.

"Public private partnerships are an excellent opportunity for the business community to share with students the advances being made right here in Mecklenburg County in terms of environmental stewardship," said Brian Kasher, Charlotte Mecklenburg Schools Environmental Manager, "We encourage businesses and consultants to engage our students and staff in educational activities that show practical solutions to today's environmental needs."

Tuition, room, board, and transportation to and from activities were provided free of charge to participants. Holly Emerson, senior analyst for Ingersoll Rand's Center for Energy Efficiency



and Sustainability, managed the program for the second year. "The Sustainability Institute has a profound impact on our community," said Emerson. "We are teaching future leaders how business is embracing and benefiting from sustainability efforts. And, getting students interested in the sciences and engineering is critical for the future success of businesses such as Ingersoll Rand. The Institute is an important component of our company's sustainability goals."

## HOW STUDENTS MAY STUDY YOUR SCHOOL FOR ENVIRONMENTAL STEWARDSHIP OPPORTUNITY

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Diana's Shell's science classes at South Mecklenburg High School participated in the district-wide environmental engagement sessions conducted in May. Students participated in discussions, brain storming sessions and presentations with and by district environmental leadership. The purpose of the sessions was to share the environmental stewardship direction the district is taking and to seek input of students and staff.

Presentations included background information on historic concerns for the environment, CMBOE policy, *Strategic Plan 2014*, energy conservation measures, recycling, current statistics and programs related to environmental stewardship. After presentations, brain storming sessions were conducted in which students provided input into what the district could be doing to better the overall environmental footprint and engagement of students.

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### MANY STUDENTS OFFERED SUGGESTIONS INCLUDING BUT NOT LIMITED TO:

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- provide more information to building occupants about the sustainable features of the buildings they occupy so they know how to maximize efficiency
- use automatic shutdown software for the district's sizable inventory of computers
- have more recycling receptacles available around campus
- have environmental programming on TV3 with students sharing ideas
- develop systems to use rainwater and or reuse water at schools
- use bus routing software to make bus routes as efficient as possible
- use low -flow or no-water urinals in bathrooms
- use reusable trays with portion sections in the cafeteria to reduce solid waste

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### STUDENTS WENT TO THE NEXT LEVEL BY CONDUCTING RESEARCH PROJECTS INTO EACH OF THE SEVEN TACTICAL AREAS OF THE ENVIRONMENTAL STEWARDSHIP CHARTER.

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Other schools whose students and staff participated in the sessions included:

Martin Luther King M.S., Ardrey Kell H.S., Community House M.S., River Gate E.S, Druid Hills E.S., Lebanon Road E.S., Carmel M.S., and Piney Grove E.S.

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### CERTIFICATES OF PARTICIPATION WERE ISSUED TO EACH STUDENT AND STAFF MEMBER WHO PARTICIPATED IN THESE SESSIONS

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The following pages include three of the reports submitted by the South Mecklenburg students as examples from their own school as a learning tool resulting in input to the district's environmental stewardship initiative.

Contact Diana Shell for more information about adapting this assignment for your school and students at [diana.shell@cms.k12.nc.us](mailto:diana.shell@cms.k12.nc.us).

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## ENVIRONMENTAL AUDIT & ASSESSMENT WORKSHEET SOUTH MECKLENBURG HIGH SCHOOL

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*Kathryn Brown, Sarah Cavins, Chelsea Johnson, Molly McClure and Albert Tran*

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### TACTIC: REDUCE VEHICLE EMISSIONS

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**Project Overview:** Several proposals including green shields, nitrogen tires, biodiesel and more efficient means of transportation to reduce vehicle emissions and improve CMS's environmental impact overall.

#### **Background Information:**

##### ***1. What information is available to you? How did you get that information?***

- "Clean Air Carolina" teamed up with CMS and Piedmont Natural Gas to reduce vehicle emissions by creating the "Take the Pledge- turn off your engine!" program.
- Clean Air Carolina, CMS and Union County Public school received a grant (\$536,000) to retrofit school buses.
- Mecklenburg County is a federal non-attainment jurisdiction as a result of not meeting USEPA Ground Level Ozone standards. Non-attainment status results in disincentives to economic development, makes doing business within the County more complicated and is simply bad for our health. Vehicle emissions are the largest contributor to ground level ozone impacting Mecklenburg County. Nitrogen oxides from vehicle emissions combine with VOC's and sunlight forming ozone/smog. This information was found on the CMS environmental website.
- During 2008-2009 CMS transportation dispensed 7.2 million gallons of fuel, 74,000 quarts of oil and replaced 7,120 tires.

##### ***2. What do you need to do around the school to collect information (i.e. audit your school)?***

- how many people drive to/from school- 350 students, 150 teachers roughly
- how many students are driven by a student-
- how many buses are used for our school- 32
- how many students ride the bus- 1099
- how many people are dropped off/picked up from school-
- how many students walk to/from school-
- how many students ride bikes to/from school-
- the total number of students at our school-
- 7 of South Meck's 32 buses have less than 15 students on them.



**3. Who do you need to contact in order to get the data you need? Did you contact them?**

| Name               | Position                                 |
|--------------------|--|
| Carol Stamper      | Executive Director of Transportation CMS |
| Phil Berman        | Executive Director Building Services     |
| Brian Kasher       | Manager, Environmental Health and Safety |
| Michael Shewchuk   | Parking at South Meck                    |
| Priscilla Davidson | Transportation - South division          |

**4. What is your school doing currently that works towards reaching your tactic?**

- “Take the Pledge- turn off your engine!”
- Bike racks.

Materials:

- <http://www.refresheverything.com/blog/2010/03/26/grantee-story-jonnys-green-shield>
- <http://www.govlink.org/biodiesel/>

**Data Analysis & suggestions for your principal:**

**1. What does the data you collected tell you? How is your school doing right now?**

It tells us that CMS is already trying and starting many programs in order to reduce vehicle emissions. South Mecklenburg is not participating very much.

**2. Give specific, detailed information on how your school can work towards becoming more sustainable, based on the information you collected. (bullet your information & provide practical ways a reduction can occur, without compromising your working environment).**

- Green shields- Install “Green shields” on all of our buses. Green shields were developed by a freshman from Chicago. He received a large grant from Pepsi to fund more research and development of his product. Green Shields are Plexiglas panels that make school buses more aerodynamic, improving mileage and reducing CO2 pollution.
- Nitrogen tires- fill bus tires with nitrogen rather than oxygen. Nitrogen tires improves fuel economy because vehicles get more miles per gallon with nitrogen tires, also it is better for the tires meaning less tires will be disposed of. It is safer because nitrogen is a noncombustible, nonflammable gas.
- Biodiesel- Use bio-diesel instead of standard diesel. It is a cleaner burning fuel. It provides significant reductions in greenhouse gases. It is renewable. It causes very little damage if spilled because it is biodegradable.
- Extend bus routes- If the number of buses used was condensed and the routes extended the amount of gas and fuel used would decrease.
- Education programs for carpooling- Inform students, teachers and parents of the benefits of carpooling.

**3. List & describe several barriers that you think may prevent your plan from being implemented to the fullest Give potential (realistic) solutions to help overcome these barriers (i.e. education programs, posters, etc.).**

- Downside of nitrogen tires: have to fill up regularly because nitrogen tires do not adapt well to changes in temperature, it is difficult to receive and house nitrogen, and it is \$10 extra per tire.
- Downside of the use of biodiesel: very costly, it is hard to find, transport and house, there are few resources.
- Downside of extending bus routes: It would lead to overpopulated buses.
- Downside of education programs: It may not lead to any change due to an indifferent community.

**4. HOW will these suggestions benefit the school and the environment? Be specific by including data to support your suggestions**

Many of the suggestions we made would benefit the school system. For example, the nitrogen tires would save an estimate \$50829.48 a year according to <http://www.getnitrogen.org>

**5. Can you think of any incentives / motivators to get people to “buy into” your program?**

- Planning a large event/field day to celebrate those who “bought into” the program.
- Providing a breakfast to carpooling parents.
- Found a club that encourages environmentally safe actions to students as well as teachers.



**Suggestions to make the project better**

- Gather more information from CMS representatives in order to have more efficient knowledge applying to our specific school and system.
- More time allowed completing the project in order to create a more informed proposal.
- Learn more about the buses and their impact on the environment.

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## TACTIC: REDUCE SOLID WASTE STREAM

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*Kathryn Brown, Sarah Cavins, Chelsea Johnson, Molly McClure and Albert Tran*

**Project Overview:** write a brief description of what you are researching & what you hope to learn during this investigation. (what's the purpose of this – explain in a few sentences what the reader is going to gain from reading your proposal) The purpose of this project is to investigate and address the school/districts' waste management issues. Through research, we hope to discover ways and means to reduce the amount of waste produced by schools, as well as strategies to recycle the accumulated waste. We hope that other schools will use our investigation as a guideline that will enable them to reevaluate their own waste management practices.

**Background Information:** This line of questioning is to get you to think about how to gather data and information that is available.

**1. What information is available to you? How did you get that information?**

The information that was available to us is mostly what we collected. We visited the CMS website to get the links to the websites for our specific topic. People in our group researched articles on composting. Two people from the group went around the school and audited the school's trash.

**2. What do you need to do around the school to collect information (i.e. audit your school)?**

To collect information around the school we audited the school's trash cans. Even though there are roughly 49 trash cans we still saw that there was trash on the ground near or around the trash cans.

**3. Who do you need to contact in order to get the data you need? Did you contact them?**

| Name          | Position  |
|---------------|---|
| Brian Kasher  | Manager Environmental Health & Safety               |
| Sandra Fish   | Exec. Director, Inventory & Distribution Management |
| Bryan Steiner | Construction Engineer                               |

**4. What is your school doing currently that works towards reaching your tactic?**

Our school is currently recycling and our new building is environmentally friendly.

**Materials:** What kind of data did you use? Where did it come from? (if you were suggesting to another school that they do this project, where can they retrieve the information that you collected? Include useful websites) List *these as bullet points*.

- Classroom surveys
- School audits
- The CMS website, and various workers involved in this subject



**Data:** Include copies of any documentation you received / created.

**Data Analysis & suggestions for your principal:** This section is the heart & soul of your project – this is your proposal. For consistency, answer the questions on your worksheet.

**1. What does the data you collected tell you? (include – what does your principal need to know?) How is your school doing right now?**

The information collected was on the number of trash cans within the school not including inside class rooms. The total number came up to approximately forty-nine trash cans. This number represents the areas of the school that either have more trash cans due to more traffic or need more trash cans due to an excess of litter. When speaking to head of custodial departments or someone who is a waste management director of CMS they would both come to the conclusion that has been noted, there is an extremely large amount of waste within the cafeteria areas.

The cafeteria area has the largest amount of solid wastes found at South Mecklenburg High school. Behind the trash cans there are large dumpsters which are listed in number on the data sheet. These dumpsters are not very efficient. There is only one dumpster devoted to cardboard recycling. Recycling would severely reduce the amount of waste found within the cafeteria area. Although there is an attempt to help reduce the amount of trash and to recycle, there is not a substantial amount of trash that is recycled.

By July 1<sup>st</sup> a new recycling program will be implemented in Mecklenburg County. This program will create single stream recycling, which will include all options of recycling that can be used. If it can be believed, the most un-recycled item in CMS is paper. CMS is a school system and paper is wasted by the tons, if more of this paper could be reused instead of ending up in landfills it would be much more efficient. Single stream trash recycling bins would also help save the amount of plastic that is thrown away.



Plastics that could be recycled presently ends up in the main trash cans and is not recycled. One issue that would come up from recycling plastic would be a lack of knowledge of what to put into recycling bins. Only certain types of plastic can be recycled and by July 1<sup>st</sup> all types of plastic, except for Styrofoam, will be able to be recycled. There needs to be information sent out to schools to inform them of this change and what materials can be recycled. When speaking to classes that collect the recycling they say many things find their way into recycling bins that did not belong in them. Spreading information on what actually belongs and what doesn't would indeed reduce the amount of solid wastes but also help add to the recycling amounts. When

surveying people as to whether or not they recycle, many people say that they do less in school than they do at home. They claim that this is due to the lack of availability of the recycling bins.

The information collected from the audits inform us also that the trash cans that are numerous in the cafeteria area, could be reduced by adding composts areas behind the kitchen. These areas could collect food wastes and decompose it in a way that would benefit the environment

by creating a “mulch like” material that can be used in the landscape of the school. This material could also be bagged and sold depending on the amount created. This program would be very successful and could maybe even be controlled by an environmental club that would know what to and what not to put in it.

Another aspect of reducing the amount of solid wastes would be to be more electronics within classrooms. Using computers for notes and websites for assignments would help reduce the amount of paper printed and ultimately wasted

Litter is found in large quantities around the school, especially within the court yards. These areas have more trash cans but also more litter. These areas could be saved from the trash by informing the students of the danger of this litter.

The environment around a school is very delicate and has to attend to the youth that is growing in the area.



Hopefully by the new programs that will be suggested and the single stream recycling that will be implemented on July 1<sup>st</sup> there will be a new and lesser amount of solid waste created.

Give specific, detailed information on how your school can work towards becoming more sustainable, based on the information you collected. (bullet your information & provide practical ways a reduction can occur, without compromising your working environment).

### Solutions and Strategies:

- **Elementary Education Program-** This program will involve high school students educating their younger peers. Students will go to elementary schools and give demonstrations in classrooms. These demonstrations will show how and what to properly recycle, teachers will also reinforce what the students teach. At the end of every lunch, the elementary students will practice recycling; by doing this each year they'll get into the habit of recycling on their own.



- **Recycling Bins-** Every classroom will be provided a recycling bin; each bin will be clearly labeled on what can be disposed of in that particular bin. The bins will be not only used for paper, but plastic and other recyclable materials as well. Clubs of the school will collect these bins each week to make them more efficient. This will dispose of our solid waste in a more sufficient manner and significantly decrease our solid waste stream.
- **Cafeteria Reform-** Changes will be implemented in the cafeteria to reduce unnecessary waste. The use of Styrofoam trays will be replaced by washable plastic trays. By changing the trays, the hundreds of pounds of Styrofoam thrown away by cafeteria workers everyday will be eliminated.

**List & describe several barriers that you think may prevent your plan from being implemented to the fullest.** (For example – recycling plastic bottles is a great idea, but are people ONLY going to put plastic bottles in those bins, or, are they going to use them at all?) Give potential (realistic) solutions to help overcome these barriers (i.e. education programs, posters, etc.)

- **Elementary Education Program-** This process can become very time consuming, in the elementary schools. At least for first few weeks, the time it takes for every student to get in a line, sift through their lunches, and be shown how to recycle could significantly lengthen lunch periods. Also, some problems may occur recruiting high school students into the program. To solve this, high school students can be given community service hours for their clubs, and the younger kids who eat lunch quickly will be given the opportunity to recycle during lunch, instead of everyone doing it at once at the end.



- **Recycling Bins-** The main issues with this idea are students throwing the wrong materials into bins. The bins will be clearly labeled as to what can go in, and will even have a list on the back in print as to the breakdown of what types of plastics can be put in, etc.

- **Cafeteria Reform:** Issues that may arise from this plan is that cafeteria workers may not want to wash dishes every day, and the dishwasher may break down. Plus, we would use gallons of water to clean them. We could purchase the most water efficient dishwashers available, but this might be a necessary trade off. Also if the trays break, they are recyclable and won't create waste.

**HOW will these suggestions benefit the school and the environment?** Be specific by including data to support your suggestions – i.e. “switching from light bulb X to light bulb Y will result in a cost savings of approximately Z for a given school year.”

These suggestions will benefit both the school and environment. The education and recycling program will increase the amounts of waste for recycling. By teaching the students how to recycle, it'll become second nature to them. They'll automatically recycle in school, and there is a good chance they'll take these same tactics home, and recycle at home. The education program and added recycling bins will also bring awareness to students. The cafeteria reformation will benefit the environment in a major way. The reformation will ultimately eliminate all Styrofoam trays that are thrown away each day. Since Styrofoam will soon no longer be permitted to be recycled, it's just added waste. There are many great things about changing to plastic trays. Not only does it decrease cafeteria waste, but if the plastic trays are ever broken or become old they can be recycled. All these strategies will benefit the school system by adding to the amount of waste being recycled. All the waste recycled can be sold to companies, and the needed money will be returned to our school system. The school system will not have to continuously pay for the Styrofoam trays that are used every day.

**Can you think of any incentives / motivators to get people to “buy into” your program?**

All of the programs that are created from these new programs that are created may have multiple incentives. Besides wanting to better the environment and reduce the amount of litter these programs should have an incentive. A monetary donation could be given to a school that produces the most successful environmental improvements. Societies and organizations within CMS should be able to provide these incentives to the schools and the money should go to help better the campus in many ways. Besides receiving a monetary reward there would also be the relief knowing that the school and the campus are much more healthy and successful in functioning.

**Suggestions to make the project better:** if we were to give this activity to another school, what suggestions do you have for making the project run more smoothly?

#### **Questions/ Information that would make the project better**

- More time
- How many Styrofoam trays we use a year, and how much do we waste on them?
- What areas of schools produce the most amounts of solid wastes?
- How much waste that is put into trash cans can be recycled?
- In what ways are the trash receptacles distributed around a campus?
- What areas of many schools campuses have the most solid waste that is not put into trash cans i.e.: litter?
- Wastes that come from the environmental landscape can be recycled into composts. Why are these procedure not implemented more?
- What would be the benefit from having environmental groups that help spread information about reducing reusing and recycling at schools?
- Would having more recycling bins help waste production at schools? What would be the drawbacks?

## TACTIC: REDUCING POTABLE WATER CONSUMPTION

Jalil Cantarero, Claudia Ash, Akhil Patelm, Rikin Patel

**Project Overview:** We are researching the water consumption of our school, South Mecklenburg, in order to create a proposal on how to reduce the potable water consumption here. As a group we hope to learn about the amount of unneeded waste water our school uses.

### Background Information

#### 1. What information is available to you? How did you get that information?

First of all we have the water costs for the years of 2007-2009 which was given to us by Mrs. Shell and can also be found on the internet. Also, we also have conversions in order to change CCF into gallons and the price of water per gallon used.

#### 2. What do you need to do around the school to collect information (i.e. audit your school)?

- Audit the number of toilets/urinals in our school.
- Calculate total gallons per flush to see how efficient our school's out of date plumbing is.
- Consider factors such as drought when assessing the water bill from past years. As

shown between school years 2006/2007 and 2007/2008 when the drought ended, and we began to water the playing fields again, significantly increasing our water bill.

- Evaluate our school water bill and compare the amount used on a month to month basis.

Calculate cost of flushing toilets per day using the equation:  $1 \text{ CCF} = 100 \text{ cubic feet} = 748.05 \text{ gallons}$

**Who do you need to contact in order to get the data you need? Did you contact them?**  
Bryan Steiner, Construction Engineer

#### **What is your school doing currently that works towards reaching your tactic?**

South Mecklenburg is currently using low flow toilets and has sinks with faucets that release low pressured water in our new buildings.

#### Materials:

- School water bill
- Number of toilets and urinals in school and how much water they use.

#### **Data Analysis & suggestions for your principal**



**What does the data you collected tell you? (Include – what does your principal need to know?) How is your school doing right now?**

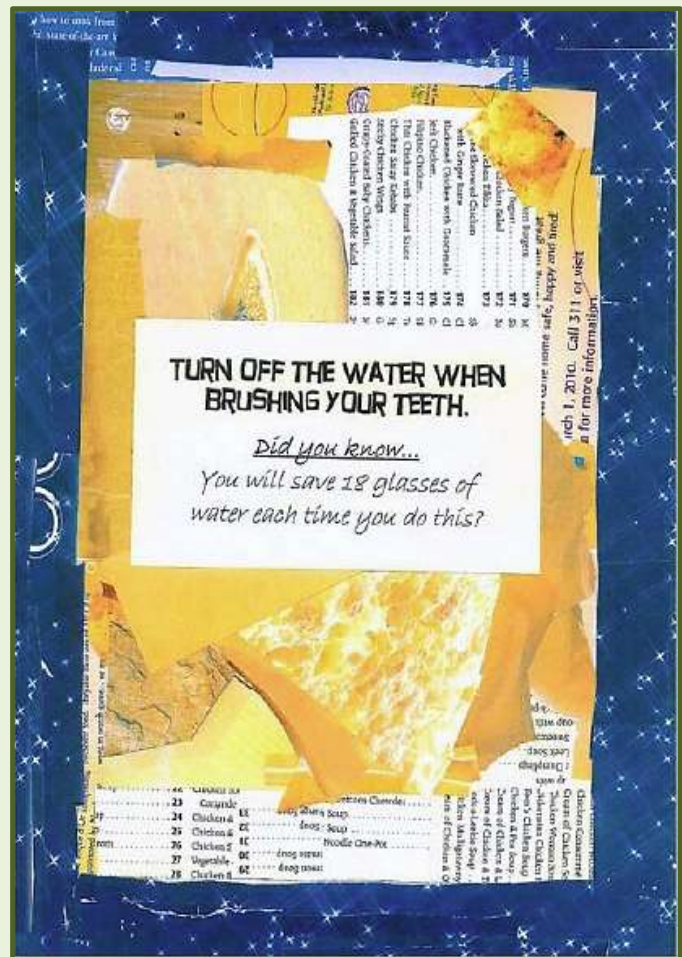
The data tells us that too much money is spent on water with the old toilets and urinals. The only toilets that are efficient in their water use are the ones in the new building. The other eight buildings have toilets that require the use of more water than is necessary. Also, a majority of the water is used watering the fields that are not always in use. The school is overpaying for a toilet flush and is not conserving the water.

**Give specific, detailed information on how your school can work towards becoming more sustainable, based on the information you collected. (Bullet your information & provide practical ways a reduction can occur, without compromising your working environment).**

- We can replace all the old toilets that use too much water with the newer and more efficient toilets.
- Signs can be put up inside the bathrooms that suggest turning the faucets off while washing hands.
- Watering the fields only during the morning and night time when there is less sunlight and not as much heat. With less heat, less of the water will evaporate and the sprinklers will not be on as long. Also, the water will soak the ground quicker.
- Replacing faucets in bathrooms to the ones that have low water pressure. This will decrease the water use and will not waste water when the person is not using it. This reduces lots of water because when a faucet with high pressure is used, gallons of water is wasted per minute.

**List & describe several barriers that you think may prevent your plan from being implemented to the fullest.** (For example – recycling plastic bottles is a great idea, but are people ONLY going to put plastic bottles in those bins, or, are they going to use them at all?) Give potential (realistic) solutions to help overcome these barriers (i.e. education programs, posters, etc.).

- Signs are great but they are not always noticed or read. An art competition can be put in place where the theme is water conservation in schools. The art will be more noticed by the students and hopefully they will take the suggestions into consideration.
- The initial cost of replacing toilets and faucets might be too much for the



school and so they might not be able to do it. Petitions and calculations of the long term investments and savings can be shown to the county. These things may convince them to fund the replacements.

**HOW will these suggestions benefit the school and the environment?** Be specific by including data to support your suggestions – i.e. “switching from light bulb X to light bulb Y will result in a cost savings of approximately Z for a given school year.”

By switching to the new toilets, money can be saved and used for other projects that benefit the school. If 3000 flushes are made during the day and possibly a third of them use the new toilets while the rest of the flushes are made in the old toilets, then 70.18 dollars are used. If all the flushes were made by the new toilets, then it will cost 39.17 dollars.

If all the flushes were made by the new toilets, then it will cost 39.17 dollars. 31.01 dollars can be saved per day. That is 930.3 dollars per month and 11163.6 dollars per year saved only on toilets. If it costs 300 dollars to replace all of the old toilets, then the replacement will cost a total of 28200 dollars. Within three years, the money saved will be greater than the overall cost of the toilets that were replaced.

**Can you think of any incentives / motivators to get people to “buy into” your program?**

After the three years, taxes for schools will decrease because the water bills will lessen significantly.

### Audit Data

| Building            | Number of Toilets/Urinals | Gallons Per Flush | Total gpf per building              |
|---------------------|---------------------------|-------------------|-------------------------------------|
| O Building          | 33 Toilets; 9 Urinals     | 1.6 gpf; .13 gpf  | 52.8 gpf Toilets; 1.17 gpf Urinals  |
| F Building          | 7 Toilets; 5 Urinals      | 3.5 gpf; 1.2 gpf  | 24.5 gpf Toilets; 6 gpf Urinals     |
| D Building          | 7 Toilets; 5 Urinals      | 3.5 gpf; 1.2 gpf  | 24.5 gpf Toilets; 6 gpf Urinals     |
| C Building          | 9 Toilets; 5 Urinals      | 3.5 gpf; 1.2 gpf  | 31.5 gpf Toilets; 6 gpf Urinals     |
| B Building          | 9 Toilets; 5 Urinals      | 3.5 gpf; 1.2 gpf  | 31.5 gpf Toilets; 6 gpf Urinals     |
| K Building          | 5 Toilets; 3 Urinals      | 3.5 gpf; 1.2 gpf  | 17.5 gpf Toilets; 6 gpf Urinals     |
| Gym Lobby           | 5 Toilets; 2 Urinals      | 3.5 gpf; 1.2 gpf  | 17.5 gpf Toilets; 2.4 gpf Urinals   |
| Gym Locker Room     | 6 Toilets; 4 Urinals      | 3.5 gpf; 1.2 gpf  | 21 gpf Toilets; 2.4 gpf Urinals     |
| Auditorium          | 4 Toilets; 2 Urinals      | 3.5 gpf; 1.2 gpf  | 14 gpf Toilets; 2.4 gpf Urinals     |
| A Building          | 10 Toilets; 4 Urinals     | 3.5 gpf; 1 gpf    | 29.3 gpf Toilets; 4 gpf Urinals     |
| E Building          | 19 Toilets; 6 Urinals     | 3.5 gpf; 1.2 gpf  | 45.5 gpf Toilet; 7.2 gpf Toilets    |
| Weight Room         | 1 Toilet; 1 Urinal        | 3.5 gpf; 1.2 gpf  | 3.5 gpf Toilet; 1.2 gpf Urinal      |
| Stadium Locker Room | 4 Toilets; 4 Urinals      | 3.5 gpf; 1.2 gpf  | 14 gpf Toilet; 4.8 gpf Urinals      |
| Stadium             | 17 Toilet; 8 Urinals      | 3.5 gpf; 1 gpf    | 59.5 gpf Toilet; 9.6 gpf Urinals    |
| School              | 138 toilet; 63 Urinals    |                   | 386.6 gpf Toilet; 65.17 gpf Urinals |

### Suggestions to make the project better

- More time can be given to increase to amount of data amassed.
- Examples can be shown to demonstrate how the project is supposed look and what it is supposed to represent.
- Students should be able to make their own tactics and not choose from a list.

# PLAYGROUNDS AND THE ENVIRONMENT

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*Submitted by Cunningham Associates, LLC.*

With the shift to so many indoor activities for children, it is now more important than ever to make sure they are exposed to all the opportunities playing outdoors and being exposed to nature can offer. With this in mind, PlayCore teamed up with North Carolina State University to create the NatureGrounds program. NatureGrounds is a comprehensive program that features many resources, including an online database of child friendly plants, a guidebook with best practice principles for combining the natural and built environment, and CAD tools to design and envision the overall play space.



**FIRST CLASS TO USE CHANTILLY MONTESSORI'S NEW PLAYGROUND**

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## **CHANTILLY MONTESSORI ELEMENTARY SCHOOL TO INSTALL THE FIRST NATUREGROUNDS COMMUNITY BUILT PLAYGROUND IN NORTH CAROLINA**

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Chantilly Montessori Elementary School in Charlotte, North Carolina worked with local GameTime representatives, Cunningham Associates, based in Charlotte, to install the first NatureGrounds community built playground in North Carolina in 2009. The playground at Chantilly Elementary consists of a PowerScape Plus structure by GameTime, featuring RockScape climbers, several slides, and ramped access.

On the outskirts of the play area, large trees were planted such as Sycamore, Corkscrew Willows, and River Birch. Closer to the play area are smaller trees and plantings such as asters, lamb's ear, sea oats and fountain grasses to add varieties of color. Standing at the entrance to the play area is GameTime's Vine Trellis featuring clematis, a blooming evergreen, to add year round color.

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## THE PLAYGROUND ALSO UTILIZES DECKS AND ROOFS MADE OUT OF 90% POST-CONSUMER WASTE

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The playground also utilizes GameTime's Timber Décor decks and roofs, which are made out of 90% post-consumer waste. Add to that the fact that the steel and aluminum in the play structure can be recycled over and over again without losing tensile strength properties and the playground becomes as environmentally friendly as it is fun!

Because of the Montessori philosophy of learning, which puts an emphasis on the natural environment, botany, biology, and science, the principal, Leslie McCarley, wanted to make sure a playground at the school would showcase these properties. *"Here at our school we really teach the children to discover nature. We have classroom gardens and we often take tests and do schoolwork outside. I knew our playground had to incorporate these things,"* McCarley explained. She was adamant about not having some static, big city play area in her tranquil setting.



The PTA chose the plants for the area, getting ideas on what types to use by consulting [www.naturegrounds.org](http://www.naturegrounds.org), which Scott Cunningham recommended as part of the Naturegrounds program. Says Cunningham, *"This is a great resource for customers who are interested in combining nature with the built playground. They can learn about plants by zone, as well as what the child-friendly properties of plants are, so incorporating elements like "loose parts" for play becomes easier!"*

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## WE ARE IN AN URBAN AREA, AND YET I DON'T FEEL LIKE I AM IN A CITY ENVIRONMENT

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"One thing I love about this school," principal McCarley said, "is that we are in an urban area, and yet I don't feel like I am in a city environment." Indeed, the school, which is bordered by trees on all sides, does make one feel as if they are in a quiet respite. The children were as excited to get their new playground as the adults, and so thankful.

An appreciation of nature also increases environmental awareness and responsibility, ensuring that today's kids will continue the mission of protecting the earth for the next generation.

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## OUTDOOR RECREATION REDUCES STRESS, IMPROVES SELF-ESTEEM, AND OFFERS CHALLENGES THAT CANNOT BE FOUND IN AN INDOOR PLAY ENVIRONMENT.

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# OCS CLUB GOES “GREEN” WITH BUILDERS OF HOPE, INC.

*Submitted by: Author: Kathryn Addo, OCS Teacher Turning Point Academy Mrs. Valoria Burch, Principal*

The OCS Club at Turning Point Academy partnered with the Charlotte office of Builders of Hope, Inc. to launch a youth volunteer program during the 2009-2010 school year. Over the past three years, Builders of Hope, Inc., a non-profit organization, has helped rebuild homes and lives by providing safe, affordable housing to working families.

Turning Point Academy is a CMS alternative school where the mission is to “...redirect student behavior through positive programs that provide rigor, relevance, and relationships geared towards building self-esteem, responsibility, leadership, community service, and academics.”

Builders of Hope, Inc.’s desire to provide at-risk youth the opportunity to learn job and life skills through their work-mentor program was a perfect fit for the goals of Turning Point Academy and the OCS Club. The OCS program is a North Carolina diploma curriculum for high school students diagnosed with disabilities.



*Seven OCS students volunteered daily at the Rowan Street Apartments worksite performing demolition work*

*to complete their requirement for community-based hours.* Students worked side-by-side with their mentor, Mr. Samuel Ramsey, and construction personnel. They learned the value of teamwork, resourcefulness and commitment as they worked together to accomplish a common goal. Builders of Hope provided the OCS team with t-shirts, hard hats, safety goggles, gloves and tools.

Turning Point Academy; Kathryn Addo, OCS teacher, Leslye Torrence, OCS job coach, and Christopher Corders, behavioral management technician worked alongside the students and provided behavioral support at the worksite. An end-of-year celebration was held on June 4 to honor the achievements of the students in the program.

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## BUILDERS OF HOPE, INC. EMBRACES A THREE-PRONG FOCUS IN REBUILDING COMMUNITIES

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- ***ECONOMIC BENEFITS:*** Builders of Hope, Inc. has a unique way to make home ownership a reality for working families. They rescue homes from demolition that would otherwise end up in landfills. These houses are either moved to planned neighborhoods for rehabilitation or rebuilt on-site, using green building standards. All are sold at cost to working families who earn below the median income.



- **ENVIRONMENTAL STEWARDSHIP:** By saving teardowns, Builders of Hope, Inc. is saving millions of pounds of debris from entering landfills. They are also committed to making our homes environmentally friendly and more affordable to live in by meeting green building and energy efficiency standards. Sustainability features include superior indoor air quality, heating and cooling cost guarantees, Energy Star appliances, solid surface counter tops, large front porches, rain barrels and drought tolerant landscaping.



Builders of Hope Founder Nancy Murray

- **GREEN PRACTICES:** Through their own green model called “Extreme Green”, Builders of Hope, Inc. is creating a new industry standard for green housing rehabilitation. The program guides the entire construction process from construction debris management to the use of green building materials. It also creates energy efficiency, reduces waste, improves indoor air quality and cuts water usage.

A special “thank you” is extended to Brenda Hayden, Charlotte-Local Area Director and Alex Henzel, Social Programs Manager.

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### **BUILDERS OF HOPE IS EXPLORING FURTHER COMMUNITY BUILDING PROJECTS IN THE CHARLOTTE METROPOLITAN AREA.**

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Builders of Hope is a 501(c)(3) non-profit and member of the US Green Building Council. The mission is to increase the availability of high-quality, green affordable housing for working families. Incorporating economic benefits, environmental stewardship and social solutions, they sustainably revitalize communities, one home at a time.

“Combining our efforts to increase the availability of affordable housing with already planned transportation upgrades is a critical start to enhancing the livability and convenience of these communities,” says Builders of Hope founder Nancy Murray. “We hope to have a lasting impact throughout Charlotte.”

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### **INTERESTED IN SERVING YOUR COMMUNITY WITH BUILDERS OF HOPE YOUTH?**

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Visit [www.buildersofhope.org](http://www.buildersofhope.org) , e-mail [info@buildersofhope.org](mailto:info@buildersofhope.org) or contact either Brenda or Alex at 980-875-9335 or 1-800-277-6138



## CMS TRANSPORTATION CLEAN AIR QUALITY INITIATIVES



During 2009-2010, CMS Transportation served an estimated 84,000 students (66% of the total eligible) to and from school. An average of 1,155 buses transported students more than 546 square miles in Mecklenburg County safely, traveling more than 21 million annual miles which is the equivalent of 44 round trips to the moon! CMS transportation dispensed 7.2 million gallons of fuel, 74,000 quarts of oil (all used oils are recycled), and replaced 7,120 tires in 2009-2010.

Nationally school buses travel approximately 4.3 billion miles per year. With a fatality rate of 0.02 per 100,000,000 passenger miles, school buses are the safest form of ground transportation in the U.S.

CMS has the largest public school transportation operation in the state and the 10<sup>th</sup> largest transportation fleet in the nation. The maximum speed limit for yellow school buses is 45 mph, or in accordance with the posted speed limit if lower.

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### **CMS TRANSPORTATION TRAVELED APPROXIMATELY 123,000 MILES DAILY TRANSPORTING OVER 85,000 STUDENTS TO AND FROM SCHOOL DURING THE 2009-2010 SCHOOL YEAR**

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The department has been using ultra low sulfur diesel for several years to improve the quality of bus emissions and assist in the efforts for cleaner air in Mecklenburg County. In addition, more than 225 buses have been retrofitted with devices such as diesel oxidation catalysts, diesel particulate filters and have even repowered several older model engines. The district operates 4 compressed natural gas (CNG) buses and 1 electric hybrid bus as alternative fuel solutions.

CMS operates and maintains approximately 1,400 school buses (active and spare), 95 activity buses, and 100+ service trucks and administrative vehicles. These vehicles are primarily staged and maintained at five bus staging facilities, of which only two offer full turnkey facilities. School Bus Fleet Magazine recently released 2010 statistics revealing that Charlotte-Mecklenburg Schools Transportation Operation ranks 9<sup>th</sup> among the nations' top 100 school bus fleets. CMS is the largest pupil transportation industry in North Carolina supporting more



than 1,600 vehicles with a team of more than 1,400 employees. Safety is the primary goal for all maintenance and services while supporting the safest method of transportation for students to and from school. According to the National Highway Traffic Safety Administration (NHTSA), "American students are nearly eight times safer riding in a school bus than with their own parents and guardians in cars."

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**AMERICAN STUDENTS ARE NEARLY EIGHT TIMES SAFER RIDING IN A SCHOOL BUS THAN WITH THEIR OWN PARENTS AND GUARDIANS IN CARS**

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The mammoth task of scheduling and transporting more than 115,000 students to approximately 171 school sites in peak traffic hours and congestion throughout Mecklenburg County while making approximately 25,000 bus stops morning and afternoon is unparalleled in most businesses. In addition, the estimated 123,000 mile round trip each day must occur within set time constraints and varying distances. CMS STO must optimize these relationships to the extent possible to gain efficient trip pairings and to maximize the utilization of available equipment, staff and budget.

The MegaTrack Fuel System, manufactured by Megatronics International Corporation, tracks all types of fuel dispensed using host computers, micro control units (MCU) and programmable



data keys. This system is designed to withstand heavy use, weather and other environments and has built in security through authorized user login and passwords to monitor use and gallons pumped from the island tanks at two bus staging facilities and the bulk fuel trucks. The MCU mounted on each island pump and fuel truck is an accounting unit designed to record the transactions for each hose on the dispenser and has the ability to track fuel consumption, identify vehicles dispensing and the vehicle receiving fuel. The system has various reporting options to include detailed daily, weekly, monthly, quarterly or yearly transactions. The fault tolerant design allows the "swap out" of MCUs in a matter of seconds if the primary MCU fails to ensure continuous tracking to the extent possible.

A full implementation of GPS units was completed in 2008-2009 on each yellow bus, activity bus, fuel truck and service truck in the CMS STO fleet. With the use of the Synovia GPS software and management solution, CMS STO staff is able to track the fleet in real time, compare actual versus planned bus routing, monitor vehicle idling, enhance accountability of time management, dispatch with a higher degree of timeliness, and provide immediate and accurate customer service. Within the first year of full implementation the department realized over \$1.5M savings in driver overtime and reduced idling time on school



grounds by 50%. These and other significant operational improvements have been possible due to the supportive data supplied through this technology.

CMS Transportation is in the process of installing mobile data terminals (MDTs) on each bus which will allow drivers to electronically capture their work time. These units will identify each bus number and have the capacity to enter the number of students entering the bus at each stop and eventually may become a tool for individual student tracking as they enter and exit the bus. This bus route and student data will interface with the Transportation Information Management System (TIMS) for comparative analysis of real time versus planned scheduling.

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### **CLEAN TRANSPORTATION INITIATIVES**

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- In November 2005, the department was recognized by the Carolinas Clean Air Coalition (CCAC) with an Airkeeper Award for efforts taken to reduce potentially harmful emissions.
- The district also was praised for participation in CCAC's recent diesel school bus study in cooperation with the Southern Alliance for Clean Energy to evaluate air quality inside the cabins and outside air quality, using different retrofit technologies and fuels.
- The district received a grant to support GPS units to monitor bus idling.
- CMS currently operates 4 CNG buses.
- CMS utilizes ultra-low sulfur diesel (ULSD) in all buses and heavy duty vehicles
- CMS Transportation operates of one of two hybrid electric buses in the state
- Repowering older model engines improves their efficiency, reduces emissions and extends their lives.
- Implemented common neighborhood stops expected to result in a reduction of more than 11,000 bus stops in the morning and afternoon
- Adjusted school bell tiers to utilize buses more efficiently
- CMS eliminated grandfathered transportation arrangements that required service for the outliers in the school district
- Reduced daily miles traveled totaling over 2M annually.
- Reduced the overall operating fleet by 100 buses in comparison to the prior year
- All yellow are operated with ultra-low sulfur diesel (ULSD)
- More than 225 older model buses were retrofitted with a combination of diesel oxidation catalysts (DOCs), diesel particulate filters (DMFs), and repowered engines (over \$1M in various grant awards)
- The Board of Education established policy on vehicle idling and Bus idling is monitored daily through a fully implemented GPS technology solution
- Grants awarded over the past 5 years have totaled more than \$1M and efforts are continuously being sought to expand the opportunities for continuous improvement.



## WHAT ABOUT BIODIESEL?

To this point, the district continues to study the benefits of purchasing or producing biodiesel fuels (B-20). The primary reason the district has not converted the fleet to Biodiesel is that it is not cost effective due to the premium pricing on state contract.

For example, during the week beginning May 18 the state contract (#405L) price per gallon for biodiesel was \$2.6149 and the state contract (405P) price per gallon for ultra-low sulfur diesel (ULSD) on May 18, 2010 was \$2.1224; a price difference of **\$.4925/gallon**.



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### IF CMS TRANSPORTATION USED BIODIESEL THE ADDITIONAL COST FOR ONE YEAR WOULD HAVE BEEN APPROXIMATELY \$1.8 MILLION

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While the district is open to proposals from biodiesel distributors, no vendor has come forward with the capacity to provide uninterrupted service at the volume and competitive cost requirements.

In these challenging economic times when teachers and other school level administrators are losing their jobs and other critical resources are being reduced or eliminated, decisions should be made to maximize cost effectiveness in every business operation.

CMS Transportation has demonstrated this good business decisions by not paying a premium cost for biodiesel fuel while at the same time reducing bus emissions through other pollution prevention means such as: reduced miles traveled, ultra-low sulfur diesel, engine retrofits, and alternate technologies. CMS Transportation is continuously monitoring grant opportunities and reviewing proposals for alternative fuel potentials.



Every school bus that is capable of operating on diesel fuel shall be capable of operating on diesel fuel with a minimum biodiesel concentration of B-20, as defined in G.S. 143-58.4.

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### CMS BUSES ARE READY TO MAKE THE SWITCH TO BIODIESEL WHEN THE ECONOMICS OF THE SWITCH DOES NOT INCREASE OPERATIONAL COSTS OF THE DISTRICT

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## HOW TO BUY GREEN: SUSTAINABLE PURCHASING

The CMS environmental management system encourages use of environmentally sustainable products (ESP) and services. By including environmental considerations in purchasing decisions, the district may reduce its environmental footprint and promote practices that improve human health, conserve natural resources, and reward environmentally conscious vendors.

District personnel are encouraged to actively seek out environmentally preferable products and services for use in day-to-day operations when quality, performance, price, and functionality are comparable to their non-environmentally preferable counterparts. A purchasing guide and tracking system is in development that will provide insights into more environmentally sustainable purchasing decisions.

### WHAT ARE ENVIRONMENTALLY SUSTAINABLE PRODUCTS?

Environmentally sustainable products and services have less negative effect on human health and the environment when compared with competing products or services that serve the same purpose. Potential comparisons may consider the environmental cost of acquisition of raw materials, production, manufacturing, packaging, distribution, reuse, operation, maintenance and disposal.

### CMS SUSTAINABLE PURCHASING

- Procures in excess of 1.2 million gallons of green cleaning products annually reducing chemical load of buildings
- Participation in Friends of the farmer local produce program reducing carbon footprint of commodities by reducing miles traveled to arrive at CMS
- Eliminated the use of 17,200 gallons of emulsifiers used in schools reducing chemical load on buildings and staff exposures to caustics by switching to alternate floor stripping process
- Use of 5400 cubic yards of recycled pallet wood as playground fall protection reclaiming resources that had met their usefulness in one form and providing a secondary use for the resource
- Piloting alcohol and biological parts cleaners reducing VOC emissions



- Using multi-function network printers that allow scanning to e-mail, double sided printing and more, reducing the amount of natural resources used in the manufacture of multiple machines, reducing the number of toner cartridges necessary, reducing electricity consumption by centralizing the printing function, reducing paper use by using the scanning to PDF function for distribution of documents
- Purchasing recyclable toner cartridges will reduce waste stream
- Purchasing water-based interior paints to reduce VOC emissions
- Purchasing playground equipment made from recycled plastics
- Purchasing Energy Star appliances and computer equipment that operate using less energy than their counterparts

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### THIRD PARTY PRODUCT CERTIFICATION

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There are a number of groups providing third-party certifications on products reported to be environmentally friendly or more environmental friendly than their counterparts. These certification programs are a means to read through what is commonly called "green washing" or the misrepresentation of the environmental benefit of a product in order for the manufacturer to benefit from their product being associated with the growing public sentiment to go green. Third-party certification associations with hyperlinks are listed below:

- [Green Seal](#)
- [Ecologo](#)
- [MBDC cradle to cradle](#)
- [SMART certification by MTS](#)
- [Co-op America](#)
- [Green Guard](#)
- [Energy Star](#)
- [Healthy Child Healthy World](#)




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### EPA HAS DESIGNATED PRODUCTS THAT ARE OR CAN BE MADE WITH RECOVERED MATERIALS AND TO RECOMMEND PRACTICES FOR BUYING THESE PRODUCTS

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The categories of products include:

- Construction products
- Landscaping products
- Non-paper office products
- Park and recreation products
- Transportation products
- Vehicular
- Miscellaneous products




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VISIT THE EPA RECOVERED MATERIALS SUPPORT PAGE [CLICK HERE>INDEX.HTM](#)

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## SUSTAINABLE PURCHASING INFORMATION LINKS

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The *Mecklenburg County Environmental Purchasing Guide* may be accessed by clicking>>> [HERE](#)

North Carolina Department of the Environment and Natural Resources has a number of resources for environmental sustainable purchasing options hyperlinked below:

### [Purchase and Contracts Division](#)

View the recycled content products available on state term contract from the North Carolina Department of Administration.

### Environmental Sustainability Resource Center [Vendor Library](#)

A vendor library listing companies that offer all types of environmental services. CMS does not recommend or endorse the services or products of any particular company listed in the library.

### [N.C. Project Green](#)

Brings together members of North Carolina's state agencies and local government communities to discuss issues related to sustainability.

### [Informed Consumer](#)

A resource that will help you find out how your dollars impact the environment and your health.

### [Re-refined Oil: Discover the Benefits](#)

N.C. Division of Pollution Prevention and Environmental Assistance shares information about re-refined motor oil, including common myths, who's using it and who certifies its use.

### [Department of Transportation's Recycled Products Program](#)

Actively seeks and uses a wide array of recycled products in road construction.

### [Local Government Purchasing - School of Government](#)

This site provides a wealth of local purchasing information and registration for courses about North Carolina purchasing.

### [Carolinas Recycling Association](#)

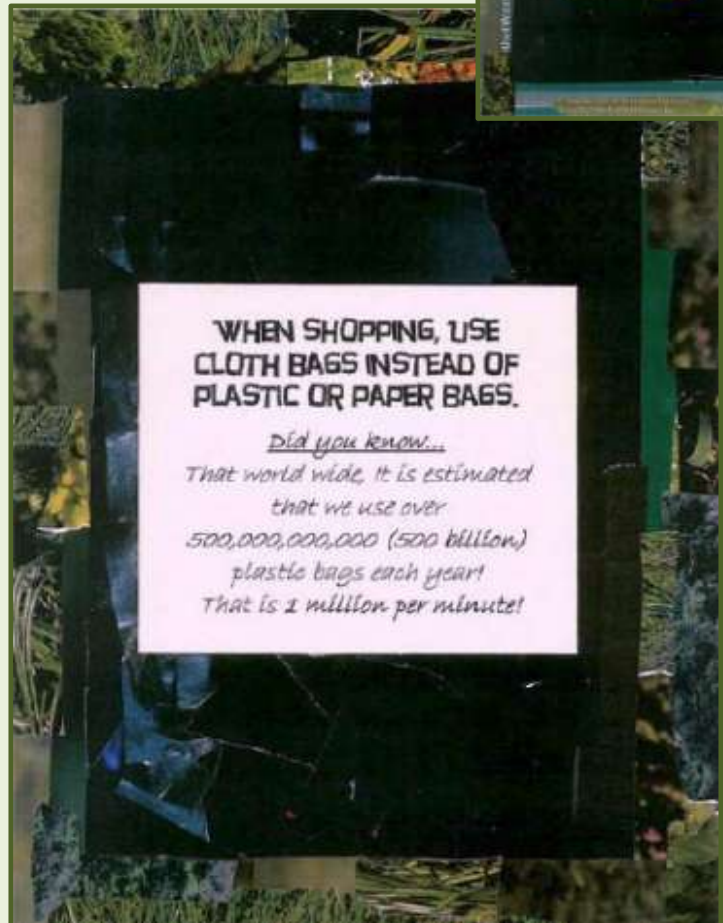
A nonprofit agency dedicated to advancing waste reduction and recycling throughout North Carolina. CRA offers an annual conference that includes information on recycling, buying recycled, market development and green building.

### [N.C. Green Building Technologies Database](#)

This database is a collection of case studies organized to help users find projects in the state of North Carolina that have implemented specific green building techniques, strategies or technologies.

### [N.C. Energy Office](#)

The State Energy Office





## STUDENT GRANT AND AWARD OPPORTUNITIES

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These resources provide information on awards, grants, and scholarships available through government agencies at the federal, state, and local levels, in addition to private organizations. Click the blue hyperlinks to go to the associated website. Note that some award programs are also sponsored at the regional and local levels. For more information on youth award programs and scholarships, contact the [Environmental Education Coordinators](#) at each of EPA's regional offices, or contact [your state environmental department](#).

- [President's Environmental Youth Awards](#) This EPA program recognizes young people across America for projects that demonstrate their commitment to the environment. Young people in all 50 states and the U.S. territories are invited to participate.
- [Internships, Fellowships, and Student Programs](#) EPA has several opportunities for students interested in environmentally-related fields of study. For more information on environmental careers, visit the [Wastes careers page](#).
- [Earth Island Institute - Brower Youth Awards](#) The Brower Youth Awards are among the nation's most prestigious recognition programs for environmental activists ages 13 to 22. These environmental awards carry with them a substantial cash prize and ongoing leadership development.
- [Gloria Barron Prize](#) The Gloria Barron Prize for Young Heroes honors outstanding young leaders who have made a significant positive difference to people and our planet. Each year, ten winners are selected nationwide. Half of the winners have focused on helping their communities and fellow beings; half have focused on protecting the health and sustainability of the environment.

- [Recycle Guys](#)

For each child who sends us artwork, they will send you a surprise from the Recycle Guys! They will also select some of the designs to post on their [\(Click HRE>>>\) KIDS' STUFF GALLERY](#). Be sure to include your name, age and address so that they can send the surprise. Students should ask their mom, dad or another adult for permission to send their artwork. So get out those crayons, unpack those markers and get your paint brushes ready! Send your artwork to:

DPPEA

Attn: Education and Outreach Coordinator  
1639 Mail Service Center  
Raleigh, NC 27699-1639

- [Target All-Around Scholarship Program](#)

Deadline: November 1st

Each year, Target awards scholarships for each Target store—to high school seniors and college students age 24 and younger. Scholarships recognize volunteer work as well as academic achievement, encouraging students to demonstrate true enlightenment that goes beyond what can be learned from textbooks.

The URL is: <http://target.com/common/page.jhtml?content=target..>

- [Apprentice Ecologist Initiative™](#)

The goal of the Apprentice Ecologist Initiative™ is to elevate young people (including disadvantaged and at-risk youth) into leadership roles by engaging them in environmental stewardship projects. A \$500 scholarship will be awarded annually to the author of the top Apprentice Ecologist essay.

The URL is: [http://www.wildernessproject.org/volunteer\\_apprent...](http://www.wildernessproject.org/volunteer_apprent...)

- [America the Beautiful Fund](#)

America the Beautiful Fund is a national non-profit that distributes FREE seeds

The URL is: <http://www.america-the-beautiful.org>

- [Humane Society Youth Award Programs](#)

Each year, Humane Society Youth acknowledges excellence and achievement in several areas of humane education with the following award programs:

- **KIND Kid Award** recognizes children in grades K-6 who have made a positive difference for animals.
- **National KIND Teacher Award** recognizes a Pre-K-12 teacher who effectively incorporates humane and environmental education into his or her curriculum.
- **KIND Children's Book Award** honors an outstanding children's book with a humane focus on animals or the environment.
- **Humane Teen of the Year Award** recognizes a teenager who has made a significant contribution to animal protection, such as direct work on behalf of animals, aiding in the passage of humane legislation, or educating others to be kind to animals.
- **Humane Society Youth Club Award** honors a K-12 youth club that has made a significant contribution to animal protection.

The URL is: <http://www.humanesocietyyouth.org/awards/default.a...>

- [RIVER OF WORDS](#)

From the [INTERNATIONAL RIVERS NETWORK](#) this is an environmental poetry and art contest for K-12 students. Entries must be postmarked by February 15 annually. The URL is: <HTTP://WWW.RIVEROFWORDS.ORG/>

- [THREE NATIONAL CONTESTS FOR EARTH SCIENCE WEEK](#)

The American Geological Institute (AGI) is sponsoring three national contests in conjunction with Earth Science Week 2010, celebrating the theme of "Exploring Energy," October 10-16.

- Photography Contest, "We Depend on Energy" - Entrants should submit images that capture the way energy is used in their communities.
- Visual Arts Contest, "Energy on Earth" - Students in grades K-5 should submit two-dimensional original pieces of art illustrating, in creative and engaging ways, where energy comes from and how it is used.
- Essay Contest, "How Energy Powers the Planet," - Students in grades 6-9 should submit one-page essays focusing on how earth system processes develop energy resources, how human use of energy affects the earth system, and how people can be responsible stewards of earth's energy resources.

The URL is: [HTTP://WWW.EARTHSCIWEEK.ORG/CONTESTS/](http://www.earthsciweek.org/contests/)

- **[REAL WORLD DESIGN CHALLENGE](#)**

This competition challenges students in grades 9–12 to apply classroom lessons to real-life technical problems. In support of science, technology, engineering, and mathematics (STEM), the 2010-2011 challenge asks student teams to develop solutions focusing on fuel efficiency in aviation. Student teams compete on a state level, and winning state teams will advance to compete nationally. The URL is:

[HTTP://WWW.REALWORLDDDESIGNCHALLENGE.ORG/](http://www.realworlddesignchallenge.org/)

- **[TRASH TO TREASURE COMPETITION](#)**

Deadline: September 5, *Design Squad*, a PBS KIDS GO! television series, is launching the nationwide 2010 Trash to Treasure competition -- challenging kids ages 5–19 across the U.S. to recycle, reuse, and re-engineer everyday materials into new inventions.

Inventions should move things or people, protect the environment, or be used for indoor or outdoor play. Finalists will be featured on the Design Squad Web site and three grand-prize winners will go to Boston to see their designs built and appear on the program and it's Web site. The URL is:

[HTTP://WWW.PBSKIDS.ORG/DESIGNSQUAD/CONTEST/INDEX.H...](http://www.pbskids.org/designsquad/contest/index.h...)

- **[Captain Planet Foundation Grants](#)**

Deadlines (annually): March 31, June 30, September 30, and December 31  
The Captain Planet Foundation is accepting applications for funding projects that help students better grasp environmental issues. Projects must promote understanding of environmental issues, focus on hands-on activities, involve students ages 6 to 18, promote interaction and cooperation within a group, help young people develop planning and problem-solving skills, include adult supervision, and commit to follow-up communication with the Foundation.

The URL is: <http://www.captainplanetfoundation.org/Default.asp...>

- **[Environmental Education on the net/ Grants- EE Specific Resources](#)**

This site has many funding sources targeted to environmental education. Search by state, regional, and keywords.

The URL is: <http://eelink.net/pages/Grants+-+EE+Specific+Resou...>

- **[YOUNG ECO-HERO AWARDS](#)**

Sponsored by Action for Nature, the Young Eco-Hero Awards recognizes successful personal action projects of young people aged 8-16 from all over the world. Action for Nature's mission is to foster respect and affection for nature through personal action.

## HOW TO RESPOND TO A MERCURY SPILL IN THE LAB

Mercury is used in many items found in schools, such as thermometers, barometers, switches, thermostats, flow meters, lamps, and laboratory reagents in chemistry and science labs. Two major causes of mercury spills at schools are improper storage and mishandling of these items. EPA encourages schools to prevent spills by removing all mercury compounds and mercury-containing equipment and by discontinuing their use. Mercury exposure may result in skin rashes and dermatitis; mood swings; memory loss; mental disturbances; muscle weakness and other adverse health conditions. The USEPA mercury and schools website has a number of free educator resources and toolkits.

**VISIT THE EPA SCHOOL MERCURY PAGE BELOW**  
[HTTP://WWW.EPA.GOV/MERCURY/SCHOOLS.HTM](http://www.epa.gov/mercury/schools.htm)



### FOLLOW THESE STEPS WHEN RESPONDING TO A MERCURY SPILL

1. Stay calm.
2. Don't touch the mercury.
3. Tell students to avoid the spill and leave the room.
4. Open the windows.
5. Leave the room.
6. Close the door.
7. Notify chemical hygiene officer and school front office
8. Front office notifies Building Services
9. Spill is contained and or remediated

## HOW TO ACCESS MSDS CHEMICAL INVENTORIES

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### **Hazard Communication Standard**



### **Enforcement of MSDS Requirement**

CMS Building Services maintains compliance with the Hazard Communication Act of 1986 by managing an inventory in excess of 400 chemicals used in maintaining district facilities. The Material Safety Data Sheet (MSDS) for each chemical is available for download or review through the CMS electronic MSDS on-line library. MSDS sheets provide a wealth of information related to storage, emergency response and first aid procedures for each chemical as well as emergency contact information. A basic outline for MSDS sheets is provided on the next page.

The MSDS library is accessible to by clicking the blue hyperlink below. Once you are at the MSDS main page simply type the name of the product in the product search tab or browse alphabetically to find the product data sheet of interest. For your convenience, there is a simple first time user training link at the upper right hand corner of the MSDS library main page.

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### **CMS HAS ESTABLISHED AN ON-LINE CHEMICAL LIBRARY HOUSING MSDS SHEETS FOR EACH CHEMICAL USED BY BUILDING SERVICES MAINTAINING THE DISTRICTS FACILITIES**

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The Occupational Health and Safety Administration (OSHA) Hazard Communication Standard established uniform requirements to make sure that the hazards of all chemicals imported into, produced, or used in U.S. workplaces are evaluated and that this hazard information is transmitted to affected employers and exposed employees. This is known as the "*Employee Right to Know.*"

Chemical manufacturers and importers must convey the hazard information they learn from their evaluations to downstream employers by means of labels on containers and material safety data sheets (MSDS's). This program ensures that CMS receives the information needed to inform and train employees properly and to design and put in place employee protection programs.

In addition to Building Services, the CMS Inventory and Distribution Warehouse and Science Departments are in the process of participating in the on-line MSDS library. Paper MSDS's are still valid and available. However, having access to all MSDS sheets from any computer terminal on-line provides maximum flexibility in the event of an emergency.

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**CLICK THE BLUE HYPERLINK BELOW TO VISIT THE MSDS ON-LINE LIBRARY.**

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**[CMS ONLINE MSDS LIBRARY](#)**

**MSDS SHEETS PROVIDE BASIC INFORMATION THAT MAY BE USEFUL IN EITHER ROUTINE OPERATIONS OR AN EMERGENCY SITUATION. BELOW IS AN OUTLINE FOR BASIC MSDS**

***Section 1. Product Identity (ANSI Section 1)***

- THE NAME OF THE PRODUCT (MUST MATCH THE NAME ON LABEL)
- THE NAME AND LOCATION OF THE MANUFACTURER
- THE DATE THE MSDS WAS PRODUCED

***SECTION 2. HAZARDOUS INGREDIENTS AND EXPOSURE LIMITS (ANSI SECTIONS 2, 3 AND 9)***

Products are usually a mixture of different chemicals. Many chemical products contain water or other substances which are not dangerous. These do not have to be listed on the MSDS.

- The MSDS must list all chemicals in the product which can cause harm
- The MSDS must include legal and recommended exposure limits

***Section 3. Chemical Characteristics (ANSI Sections 2 and 9)***

- The temperature at which a liquid changes into a gas (boiling point)
- Whether a chemical vapor will rise or sink in the air (vapor density)
- Other physical properties

***Section 4. Fire and Explosion Information (ANSI Section 5)***

- Identifies any unusual fire or explosion hazards
- The lowest temperature at which a liquid will generate sufficient vapor to flash (ignite) when exposed to a source of ignition. (flashpoint)
- The amount of a chemical vapor that must be in the air to burn (lower explosive or flammable limit and the upper explosive or flammable limit)

***Section 5. Reactivity (ANSI Section 10)***

- Whether a chemical is stable and what conditions to avoid
- Identifies other chemicals or materials to avoid mixing together

***Section 6. Health Effects (ANSI Sections 2, 3 and 11)***

- Identifies the way a chemical enters the body (ingestion, inhalation, absorption)
- Lists the acute and chronic health effects that might occur

***Section 7. Handling and Storing Instructions (ANSI Sections 6, 7 and 13)***

- What to do in case of a spill
- How to safely store and dispose of the chemical

***Section 8. Control Measures (ANSI Section 8)***

Identifies ways to protect workers from exposure:

- If you read “use with adequate ventilation” or “do not breathe vapors (or dust),” then you need Engineering Controls (exhaust ventilation) or Personal Protective Equipment (respirator).
- Always implement Engineering Controls first. By removing the hazard, the risk for exposure would be greatly reduced.



## BUILDING SERVICES SMART TEAM

CMS has enacted, trained and achieved medical clearance for an in-house special maintenance assignment response team (SMART) to address the district's small-scale, short-duration critical response needs beyond routine maintenance and/or custodial service.

### **THE SMART TEAM IS PREPARED TO RESPOND 24/7/365 TO IMPROVE RESPONSIVENESS WHILE REDUCING COSTS RELATED TO EMERGENCY RESPONSE**

The SMART team operates in a fashion that ensures projects are conducted with the highest possible consideration for facility occupants and environments using methods that result in minimum disruption of academic activities while maintaining environmentally secure conditions.



SMART team members receive, at minimum, 24 hours of initial training including the AHERA/OSHA 16 hour Asbestos Operations and Maintenance training and an additional 8 hours of mold remediation specific training prior to working on any SMART team assignment. Training includes, but is not limited to: background information of ACM/mold, personal protective equipment including respiratory protection, medical surveillance, hazard communication, work practices and techniques, engineering controls, regulations and other hazards,

Personnel new to the SMART team are not assigned to work on actual SMART team assignments without first having one day of closely supervised field experience and or an assigned mentor. Each SMART Team member is medically cleared to wear a negative pressure respirator prior to participation on any SMART team assignment.



### **REGULATIONS AND GUIDES HYPERLINKED BELOW**

“A Brief Guide to Mold in the Workplace” US OSHA  
<http://www.osha.gov/dts/shib/shib101003.html>

“Mold in Schools and Commercial Buildings” USEPA  
[http://www.epa.gov/mold/mold\\_remediation.htm](http://www.epa.gov/mold/mold_remediation.htm)

OSHA Asbestos Standard for General Industry  
[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=standards&p\\_id=9995](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9995)

OSHA Hazard Communication Standard  
[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=standards&p\\_id=10099](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10099)

OSHA Respiratory Protection Standard  
[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_id=12716&p\\_table=standards](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=12716&p_table=standards)

## WHAT ABOUT ASBESTOS AND LEAD-BASED PAINT?

Charlotte Mecklenburg Schools complies with the Asbestos Hazard Emergency Response Act of 1986 (AHERA) and the National Emission Standards for Hazardous Air Pollutants (NESHAP). Each school built prior to 1989 has been inspected for asbestos and is re-inspected every three years by North Carolina Health Hazards Control Unit licensed inspectors until the asbestos has been removed. Buildings are surveyed every six months by Building Services personnel to ensure changes in condition result in appropriate response action.

Buildings are also surveyed prior to renovation and demolition for asbestos. NESHAP asbestos survey information is incorporated into the project specifications and design for occupant and labor safety purposes. NESHAP inspections include additional materials not generally included in the AHERA surveys referenced above. For instance, roofs and building exteriors are included in the NESHAP surveys whereas they are not included in AHERA asbestos surveys.

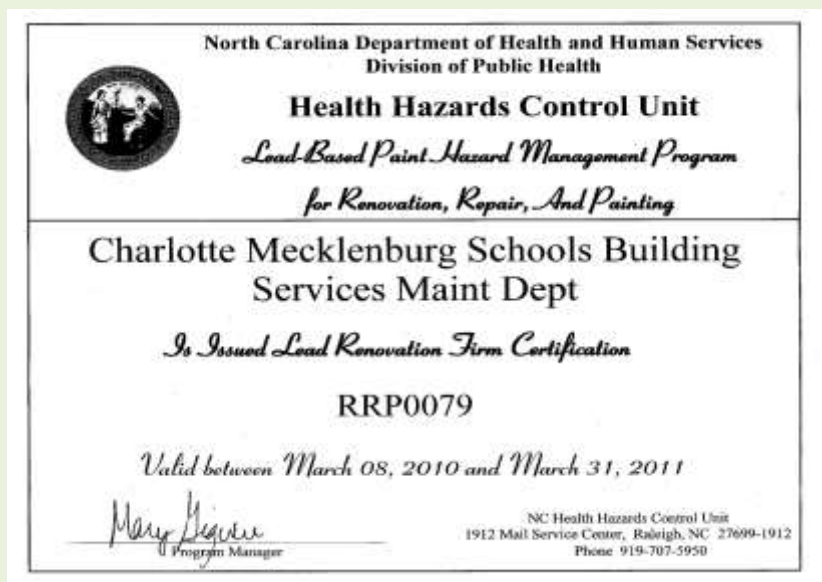
The district has licensed asbestos inspectors, project designers and management planners on staff to ensure prompt response to any issue and to proactively manage asbestos in place.

### THE ASBESTOS PROGRAM GOALS ARE

- To maintain environmentally secure learning and workplace environments.
- To ensure that all maintenance, removal and disposal of ACM is compliant with all OSHA, EPA (AHERA/NESHAP), North Carolina and Mecklenburg County regulations
- To manage construction, demolition and maintenance asbestos projects including the contracting of licensed abatement firms, and preparation of asbestos project designs.
- To manage in-house operations and maintenance activities including: training medical surveillance, internal work permitting, monitoring and record keeping.

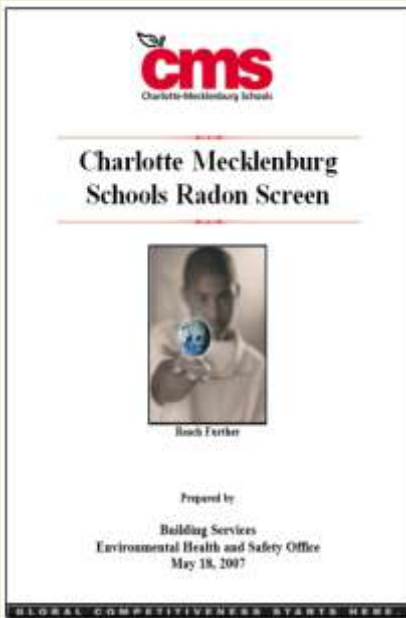
### LEAD-BASED PAINT MAINTENANCE

CMS is also certified to conduct maintenance activities through the North Carolina Department of Health and Human Services, Division of Public Health, Health Hazards Control Unit, Lead-based paint hazard management program. The district was issued the 79<sup>th</sup> certification issued by North Carolina. At the time of this writing the state has issued 1216 such certifications. CMS was the first North Carolina school district certified under this federal and state mandated program and is one of six at the time of this writing.





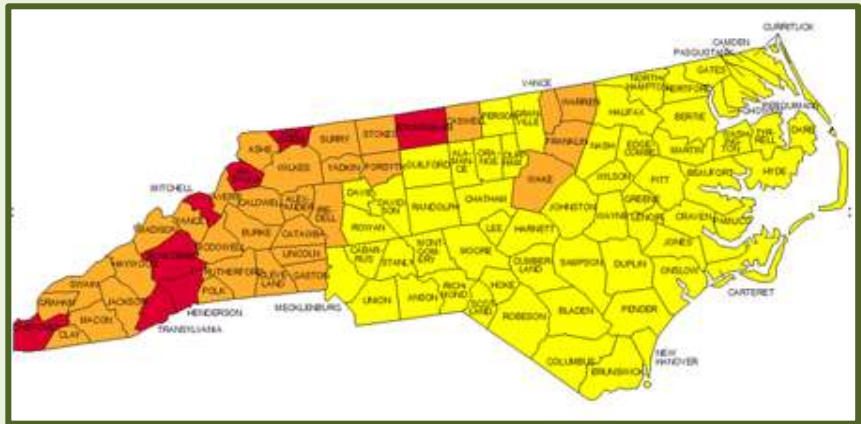
# RADON GAS






Radon comes from the breakdown of uranium in soil, rock and water and gets into the air. Radon is a colorless, odorless, chemically inert gas that can be found all over the U.S. and North Carolina. The Surgeon General has determined radon to be the number two (2) cause of Lung Cancer in the United States second only to cigarette smoke. The CMS Environmental Health and Safety Office conducted a county-wide air sample screening to determine levels of radon gas in Charlotte Mecklenburg Schools facilities.

USEPA and the North Carolina Department of Environment and Natural Resources (NC DENR) Radon Program list Mecklenburg County as predicted to have low radon issue probability within North Carolina as shown on the map below. The results of this survey support the prediction and indicate CMS facilities are not prone to Radon Gas issues above the USEPA limit of concern of four (4) PicoCuries.

Research Randomizer, a random number generation program, was used to select **12-13** schools from each of the existing six (6) regions to make up the total of eighty (**73**) schools. Additionally, 6 administrative sites were also selected by the Research Randomizer. The Auxiliary Services office was tested as a quality assurance measure in that all samples were processed through this office. A total of one-hundred sixty samples were analyzed during this screening project.



Laboratory analysis results indicate none of the one hundred sixty collected samples exceeded the USEPA limit of concern for radon gas. The highest level of radon gas reported by the laboratory for this survey was 2.3 PicoCuries which below the USEPA limit of concern of 4 PicoCuries.

|   |   |                    |
|---|---|--------------------|
|  | <b>Zone 1</b> counties have a predicted average indoor radon screening level greater than 4 pCi/L (pico curies per liter) (red zones) | Highest Potential  |
|  | <b>Zone 2</b> counties have a predicted average indoor radon screening level between 2 and 4 pCi/L (orange zones)                     | Moderate Potential |
|  | <b>Zone 3</b> counties have a predicted average indoor radon screening level less than 2 pCi/L (yellow zones)                         | Low Potential      |

Radon and MAP Data Available at:  
<http://www.epa.gov/radon/index.html>

## PLAYGROUND INSPECTIONS

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CMS provides 248 playgrounds located at 118 schools throughout Mecklenburg County for student and community use. Playground management includes procurement of playground equipment, playground inspections focused on ASTM and CPSC playground safety guidelines and the continuous provision of maintenance including fall protection surfacing. CMS manages in excess of 1000 playground safety inspections per year. If you observe a condition that needs to be addressed at a CMS playground be sure to report it promptly to the school's front office. The office will enter a maintenance work request.

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### PLAYGROUND MAINTENANCE

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School staff, Property Management and or the Grounds Department are consistently monitoring conditions at CMS playgrounds. The CMS Environmental Health and Safety Office provides annual playground audits and in collaboration with the Building Services Customer Service Call Center tracks inspection findings to ensure inspection work requests are entered.

Three -hundred thirty eight (338) work requests were entered for playgrounds during the 2009-2010 school year a reduction of one-hundred eighty three (183) work requests over school year 2008-2009. Five-hundred twenty one (521) playground work requests were entered for the 2008-2009 school year.

Playground work requests are assigned priority status by the Maintenance Department. Maintenance distributes recycled pallets for fall protection surfacing.



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### PLAYGROUND SUPERVISION

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During school hours student play takes place under staff supervision. It is recommended that parents or other adults supervise the activities of community children making use of school playground equipment outside of the school's auspice.

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### FOR ADDITIONAL INFORMATION

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**Consumer Product Safety Commission Handbook on Playground Safety**

<http://www.cpsc.gov/cpscpub/pubs/325.pdf>

**State of North Carolina 1 Hour ASEP Playground Inspection Training**

<http://documents.cms.k12.nc.us/dsweb/Get/Document-25245/playground+safety.mov>

# OLDE PROVIDENCE PIZZA GARDENING: A GREAT SUCCESS!

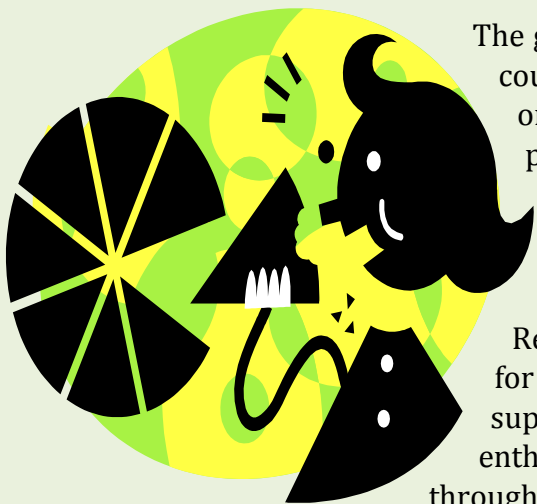
*Submitted By: Cheri Powers, 3rd grade teacher, Olde Providence E.S.*

Olde Providence 3<sup>rd</sup> grade students celebrated their joy of education through hands on learning by creating a "Pizza Garden". In early spring with the help of local sponsors, the students planted vegetables and herbs to cultivate a deeper commitment towards healthy eating. Throughout the school year they tended to the garden's weekly needs. *The children were able to conduct investigations and build an understanding of plant growth while utilizing their math skills as they charted the development of the vegetables.*

Naturally occurring situations provided students the opportunity to examine and analyze the multiple roles individuals perform in families and communities. They were also able to theorize on basic economic principles as it related to the community and global concerns. Their journal entries recorded the successes and failures each student and plant encountered. It was wonderful to see students empathize over the death of a seedling and the willingness of another classmate to share their plant, planning together the best strategy for long term survival while gaining an insight into the lives of farmers and the great contribution they make to our society.



## **AFTER MONTHS OF WORKING AS A TEAM, BEING PATIENT AND DEDICATED TO THE PROJECT, THE STUDENTS WERE ABLE TO DECLARE THEIR GARDEN A HUGE SUCCESS!**



The greatest joy came at the end of the school year when students could finally enjoy the fruits of their labor by picking tomatoes, onions, spinach, basil and oregano. Community agencies had partnered with a local pizza café that kindly allowed the children to gather their fresh vegetables and bring them to the restaurant where the staff used the ingredients to create whole grain pizzas and served them lunch!

Reflecting on this class project has given me a sense of gratitude for a school principal, a school system and a community that supports hands on learning. The students shared their enthusiasm for science, applied math in a functional way, and through social studies extended their understanding of our



global connectedness. The children gained a greater comprehension of good nutrition and looked forward to learning.

How delightful to hear that many of our families would continue the gardening experiences through traditional gardens or by planting in pots for those who wanted to start small or didn't have extended space. One of my students decided that he would expand his lemonade stand to include vegetables from his garden, while others thought they could share their produce with friends and family members.

I was hopeful that the "seeds" we planted together may continue to grow in many ways for years to come.



# SMITH LANGUAGE ACADEMY: OUR FIRST YEAR IN THE HABITAT GARDEN — ACCOMPLISHMENTS AND OBSTACLES TO SUCCESS

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*IV in a Series of IV by Mary Stauble. Find the entire series at the link below.*

<http://charmeck.org/mecklenburg/county/SolidWaste/PLANTProgram/Pages/School%20Habitat%20Learning%20Series.aspx>



The first year of Habitat Gardening at Smith was a distinct success. Teachers, parents and kids have been positive about the changes happening on the school grounds. A stark courtyard with some weedy Bermuda grass and a lone crabapple tree has been slowly changing before our eyes. The transformation is striking. River birch trees, sweet pepper bush and Virginia sweetspire have leafed out over the year. Last fall winterberry hollies were covered with bright red berries. Things are starting to grow and flourish, both in the garden and in the school.

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## **GARDENS ARE A CATALYST FOR CREATIVITY AND GROWTH. THEY SPARK OUR IMAGINATION AND IN THE PROCESS OF DISCOVERY WE GET HOOKED ON LEARNING.**

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Teachers are taking students outside to garden. Kids see things grow and find it exciting. They are learning to be observers. The shop teacher, along with students, made a table, benches and a butterfly box for the habitat garden. The science teacher ordered bird feeders and bluebird boxes with money from the Parent Teacher Student Association. The Environmental Club put these together and set them up in the garden. The art teacher and students made decorative tiles and colorful ceramic water dishes for the garden. Some teachers are eating their lunch outside. Students, teachers and parents are asking questions about gardening.

The incredible momentum suffered a blow when our gung-ho science teacher, who initiated the school garden, was offered a position at NASA. In May we discovered she would be leaving at the end of the school year. This could have been the death knell for our garden project if it were not for our strong Habitat Team. A garden project needs to be more than just a one-person show: it needs a strong school commitment. Other school gardens have quickly fallen into disrepair when the lead teacher left.

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## **GARDENS CAN BE WONDERFUL HANDS-ON LEARNING TOOLS FOR A VARIETY OF SUBJECT BUT MANY THINGS CAN CAUSE THEM TO FAIL**

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Gardens are process oriented. A first obstacle to successful school gardens is a fundamental misunderstanding of what gardening involves. Most people in our society are product-oriented. They are busy checking things off their lists. When asked to make a habitat garden they view it like decorating a living room, but instead of furniture, plants are used. Once plants are set in place, in their minds the mission is accomplished. First mistake. Gardens are process-oriented.

Gardens take time, are constantly evolving and need care to continue. As the old saying goes, "When the gardener goes, so does the garden." Unfortunately, we live in a culture that wants everything now. People are not patient. A garden project needs a minimum of a three- to five-year commitment to see its potential. Gardeners know a garden is never done. We enjoy the

process. Each day in the garden brings discoveries and surprises. To the careful observer, a garden is never the same and that is part of its charm.

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### **GARDENS NEED CONTINUITY**

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A second obstacle to gardens in the Charlotte-Mecklenburg system is that our schools are under constant change. Our school system is operating under tremendous growth. Each year schools have more trailers or mobile classrooms to accommodate this growth. Teachers, staff and students frequently move around while gardens need continuity. At Smith Language Academy, many of the teachers come from different countries and are here on a three-year visa. School gardens will likely have many leaders over the years.

School gardens are often lead by a habitat team, which can help buffer staff transitions. However, habitat teams create new challenges. Continuity is harder to come by when a garden is led by a group of people. Imagine designing a garden by committee. It can lead to a lack of cohesion and a hodge-podge of elements. Communication can be difficult and egos can be wounded. Clear direction and leadership is needed.

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### **GARDENS NEED CARE YEAR ROUND**

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There may be seasons of greater activity, but something needs to be done each month. This is also difficult with the school calendar where over two months during the summer everyone is gone. Newly planted material needs to be watered regularly for the first year. Who will do this over the holidays and summer break? Systematic care needs to be planned for before spending lots of money on plants.

Grounds staff need clear guidance on their role in the habitat project. Most are not gardeners. They see "natural areas" as weed patches and strive to tidy them up, pruning shrubs into neat balls and cutting back dead flowers, which are the seed sources for birds. In a short amount of time a great deal of harm can be done with the best intentions. Sometimes signage can help people see things differently. Communication must be an on-going process as ground staff may also come and go.

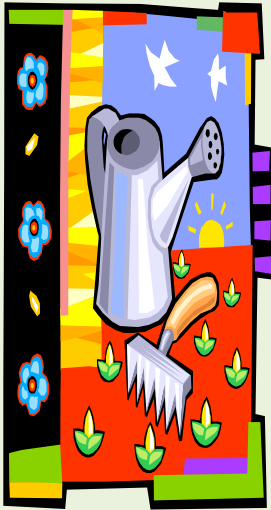


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### **GARDENS NEED TO BE VALUED AND SUPPORTED**

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A third obstacle to school gardens is that they are not valued by the CMS administration, are not encouraged, and there is no infrastructure to support it. Currently schools are under strong pressure to show accountability, which is done primarily through testing. Tested subjects like reading, writing and math are given more emphasis, as scores will determine a school's ranking. Teachers are under pressure to meet goals and many teach to the tests. Even a high-performing school will have goals raised each year. In light of these pressures, gardens are viewed as a distraction to the "real work" schools must accomplish. Teachers have very little discretionary time to use the garden effectively. This is a sad commentary on education, as there is much a



garden can teach us. Our school principal was supportive of the project, which encouraged teachers to get involved. This support was very important to our success.

The CMS administration does have safety concerns that garden planners need to take into account. School grounds need to have a clear field of vision. They don't want hidden areas where kids might be bullied. There is also concern about attracting animals like bees and snakes, which might harm students. Gardens present some dangers, and teachers and students need to learn how to deal with them. Within six months of breaking ground on our habitat garden, Poison ivy had seeded, probably spread by a bird. Fortunately, this was noticed and used as a teaching tool before removing it from the garden.

There are also concerns from staff about vandalism of the garden site. Some schools are in marginal neighborhoods. Our garden was in a central courtyard, which was not very visible from the street. We had very few problems the first year—a plant pulled out, which we replanted. The second year a chain link fence was installed, which can be locked when staff is not present.

I am still a fan of school gardens although I recognize the difficulties. They will not likely last for years and years. Yet long after the garden is gone, the experiences are not forgotten. Seeds have been planted in the soil and in minds. These hands-on learning experiences are powerful.

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**AS CONFUCIUS WISELY SAID, "I HEAR AND I FORGET. I SEE AND I REMEMBER. I DO AND I UNDERSTAND."**

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As our society moves away from contact with the earth, there will be fewer opportunities for children to have garden experiences at home or with extended family. School gardens have the potential to reach a huge segment of the population. Gardens are successful in many school districts around the United States and often operate in conjunction with Master Gardener programs. Wonderful curriculum materials are available using the garden for cross-discipline learning.

**FOR MORE INFORMATION ON GARDENING WITH CHILDREN**

**THE AMERICAN HORTICULTURAL SOCIETY:**  
[HTTP://WWW.AHS.ORG/](http://www.ahs.org/)

**THE NATIONAL GARDENING ASSOCIATION**  
<http://assoc.garden.org/grants/>

**THE NATIONAL WILDLIFE FEDERATION**  
<http://www.nwf.org/in-your-backyard.aspx>

# YOUTH GARDEN GRANTS PROGRAM

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**PRESENTED BY THE NATIONAL GARDENING ASSOCIATION  
AND SPONSORED BY THE HOME DEPOT**

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NGA is delighted to announce that The Home Depot Garden Club has returned as our Youth Garden Grants sponsor for 2011. For more than 25 years, NGA's Youth Garden Grants program has helped more than 1.3 million youngsters reap rewards and vital life lessons from working in gardens and habitats, and thanks to the generosity of The Home Depot Garden Club, we can reach many more eager young learners.

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## PROGRAM CRITERIA

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NGA awards Youth Garden Grants to schools and community organizations with child-centered garden program. Grant applications are due by October 1, 2010. In evaluating grant applications, priority will be given to programs that emphasize one or more of these elements:

- educational focus and/or curricular ties (if applicant is a formal education program)
- nutrition or plant-to-food connections
- environmental awareness/education
- entrepreneurship
- social aspects of gardening such as leadership development, team building, community support, or service-learning.

Who should apply: Schools, youth groups, community centers, camps, clubs, treatment facilities, and intergenerational groups throughout the United States are eligible. Applicants must plan to garden in 2011 with at least 15 children between the ages of 3 and 18 years. Previous Youth Garden Grant winners who wish to reapply may do so, but must wait one year (e.g., if you won in 2010, you can apply again in 2012) and have significantly expanded their garden programs.

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## GRANT PACKAGES

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For the 2011 grant cycle, 100 grants are available. Packages are as follows:

- Five(5) programs will receive gift cards valued at \$1000 (a \$500 gift card to The Home Depot and a \$500 gift card to Gardening with Kids) and educational materials from NGA
- Ninety Five(95) programs will receive a \$500 gift card\* to The Home Depot and educational materials from NGA

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**VISIT THE YOUTH GARDENS GRANT PAGE FOR MORE INFORMATION**

**[HTTP://ASSOC.GARDEN.ORG/GRANTS/](http://assoc.garden.org/grants/)**

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# HOW OLDE PROVIDENCE BENEFITS THROUGH COMPOSTING AND INVITES YOU TO CREATE YOUR OWN COMPOST PILE

*Submitted By: Cheri Powers, 3rd grade teacher, Olde Providence E.S.*

**Third grade students** at Olde Providence are learning firsthand about the variety of benefits that composting contributes to their garden and the neighborhood. The children are encouraged each Friday to bring in materials that support the composting process.

Over time they will conduct investigations to build an understanding of soil properties. Through their weekly trips to the compost pile, they will journal their observations and determine the relationship between heat and decaying plant matter.

The project will demonstrate how composting enriches the soil by encouraging the production of bacteria and fungi which break down organic matter to create humus. It can help to remediate contaminated soil by absorbing odors. The process degrades certain preservatives and pesticides. It prevents pollution by reducing the production of methane in landfills. Composting helps to stop erosion.



## CREATING YOUR OWN COMPOST PILE IS EASY

1. First you will need to decide whether to purchase a compost bin similar to ours or find a dry, shady area near a water source to create the compost pile.
2. The US EPA describes three basic ingredients for composting:
  - Browns - materials such as dead leaves, twigs, and branches
  - Greens - fruit scraps, grass clippings, vegetable waste, and coffee grounds
3. Water

***Having the right amount of greens, browns, and water is important for compost development.*** The compost pile should have an equal amount of browns to greens and alternate layers of organic materials of different-size particles. The brown materials provide carbon for your compost and the green materials provide nitrogen, while the water provides moisture to help breakdown the organic matter.

1. Cover your composting area with a 6-inch layer of brown materials.
2. Add a 3-inch layer of green materials and a little soil.
3. Lightly mix the two layers above.
4. Top with a 3 inch layer of brown material and mix with water until moist.
5. Turn your compost pile every week or two with a pitchfork to distribute air and moisture. Move the dry materials from the edges into the middle of the pile.
6. Your compost will be ready in one to four months.

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### WHAT TO COMPOST - THE IN LIST

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#### Per US EPA

- Animal (cow or horse) manure
- Cardboard rolls
- Clean paper
- Coffee grounds and filters
- Cotton rags
- Dryer and vacuum cleaner lint
- Eggshells
- Fireplace ashes
- Fruits and vegetables
- Grass clippings
- Hair and fur
- Hay and straw
- Houseplants
- Leaves
- Nut shells
- Sawdust
- Shredded newspaper
- Tea bags
- Wood chips
- Wool rags
- Yard trimmings



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## WHAT NOT TO COMPOST - THE OUT LIST

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### ***LEAVE THESE ITEMS OUT -REASONS WHY***

- Black walnut tree leaves or twigs - Releases substances that might be harmful to plants
- Coal or charcoal ash - Might contain substances harmful to plants
- Dairy products (e.g., butter, milk, sour cream, yogurt) and eggs -Create odor problems and attract pests such as rodents and flies
- Diseased or insect-ridden plants -Diseases or insects might survive and be transferred back to other plants
- Fats, grease, lard, or oils - Create odor problems and attract pests such as rodents and flies
- Meat or fish bones and scraps - Create odor problems and attract pests such as rodents and flies
- Pet wastes (e.g., dog or cat feces, soiled cat litter)- Might contain parasites, bacteria, germs, pathogens, and viruses harmful to humans
- Yard trimmings treated with chemical pesticides - Might kill beneficial composting organisms

Our students use the compost to support their class garden and enjoy the learning process. They also have encouraged their parents to start one at home!

Hand in hand we build the future. (one garden/compost pile at a time)



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**ALL TEACHERS ARE ELIGIBLE FOR A FREE COMPOST WORKSHOP WITH CEU  
ACCREDITATION: CALL NADINE FORD @ 704-432-1970**

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**CLICK HERE TO DOWNLOAD THE FREEGUIDE TO BACKYARD COMPOSTING IN  
MECKLENBURG COUNTY>>> [A GUIDE TO COMPOSTING IN MECKLENBURG COUNTY](#)**

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## HOW TO RETHINK RECYCLING: SINGLE STREAM!

With the new school year begins an expanded recycling program for all CMS facilities! All materials included in the “Re Think Recycling” curbside recycling programs in Charlotte-Mecklenburg may now be deposited in your regular recycling bins. There is no need to separate cans, bottles and paper for recycling any longer because they all are sent for recycling together. Using a single collection bin for all of the allowable recyclables is referred to as single stream recycling.

### RECYCLABLES NOW GO INTO RECYCLE BINS TOGETHER

Recycled materials are now deposited together in the external recycling dumpster(s) for pick-up. Items that may be included in your recycling bins include:

Paper including: white paper, colored paper, paper generated from bulletin boards and art projects, cardboard, box board, paper from locker clean-outs, paper from drama sets, the rule of thumb is that if you can tear it, you can recycle it; junk mail; empty drink containers including cans, milk cartons, juice boxes and bottles; plastic containers; rigid plastics like toys and buckets; empty aerosol cans; metal food cans, magazines; phone books and more.



### NOT ALL ITEMS ARE RECYCLABLE THROUGH THE SINGLE STREAM PROGRAM

It is important to be aware that certain waste items *may not be* recycled and could result in contaminating your recycling bins or dumpster. A contaminated load of recycled material may be treated and disposed of as trash depending on the volume of contamination. Please do not recycle the following:

**NO** Pizza Boxes; **NO** Bottle Caps or Lids; **NO** Plastic Bags; **NO** Shredded Paper; **NO** Plastic Food Trays or Cups; **NO** Ceramics; **NO** Pots & Pans; **NO** Glassware; **NO** Paper Plates or Napkins; **NO** Batteries; **NO** Light Bulbs; **NO** Wire Hangers; **NO** Clamshells or Styrofoam, **NO** Food/Chewing gum; **NO** Candy/Gum wrappers; **NO** Heavily Glued paper; **NO** Text Books; **NO** Tissues

**MILK CARTONS AND OTHER DRINK CONTAINERS MUST BE EMPTY!!!**



## RECOMMENDED PRACTICES FOR SINGLE STREAM

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- Designate a recycling coordinator for your location
- Have an easily accessible recycle container placed in a location next to the trash receptacles for office areas and/or administrative rooms
- Have recycle containers placed in easily accessible locations next to trash receptacles in all classrooms, gyms, locker rooms, lounges
- Recycling posters will be delivered to your site to hang at the recycling locations in each room.
- Have recycle containers available and easily identified at all outside activity areas such as entrances, field houses, sports complex areas.
- Designate employees, staff or volunteers to empty recycle bins from their rooms into the larger custodial recycling collection cart on a daily basis.
- Custodial recycling collection carts should be strategically located for quick accessibility to students/teachers/office staff (short walking distance) and custodial convenience. Carts should be assigned to hallways, departments, large gathering areas, building wings, etc. making nightly collection more efficient.
- Multiple recycling collection carts will maximize your success in this program.
- Custodians will remove recycle contents daily and place them in appropriate external dumpster. *Student volunteers should not be depositing materials in dumpsters.*



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### HOW TO GET STARTED

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- Make sure your facility has a designated recycle dumpster in place.
- Make sure that the side doors on the dumpster are not welded shut.
- Identify the areas that you will place a custodial recycle collection cart.
- Identify how many additional classroom/office bins you need in your facility or department.
- Request all employees search their work areas for recycle bins that are not being used for recycled material or for bins that have been put in storage. Occasionally some recycling bins have been used for other purposes over the summer months.
- Place educational posters in high traffic areas and over each collection bin.
- Hold staff training sessions on recycling emphasizing safety while handling carts or bins.

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## HOW TO PREPARE MATERIAL FOR RECYCLING

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- Flatten all cardboard and boxboard
- Empty all milk and juice cartons
- Empty all cans and bottles
- Empty all aerosol cans
- Empty and clean all food containers
- Remove lids and tops before recycling
- Do not remove staples from paper
- All items must be emptied loose into the outside dumpster
- Do not place plastic bags into the dumpster
- Do not place shredded paper into the dumpster
- Remove any contaminants from your recycling carts and dumpsters

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## TOUR THE RECYCLING METROLINA RECYCLING CENTER!

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Curious about where all of the recyclables that are picked up at the school go? The Metrolina Recycling Center is the County's processing facility for a wide range of materials collected from homes, schools and businesses. Recyclables brought to the facility are sorted and prepared for market. Free tours of the center are available and tailored to any age group. The facility has an Environmental Education Center.

The newly renovated center is furnished with the latest audio-visual equipment, allowing the public to see the materials as they are processed. The center also has a viewing platform where the public can safely view the truck dumping the recyclables, as well as the sorting and processing of the materials, and finally, the baled materials being loaded onto tractor trailers. To schedule your free tour, call Paula Hoffman at 704-598-8595.

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## RECYCLING CONTACTS

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- For additional classroom/hallway/office bins, classroom presentations, training sessions, educational posters or fliers, contact Mecklenburg County at 704-336-3777 or [Trey.Miller@MecklenburgCountyNC.gov](mailto:Trey.Miller@MecklenburgCountyNC.gov)
- For missed/additional pickups of recycling and garbage dumpsters, contact Brandon Barton at [bsm@cms.k12.nc.us](mailto:bsm@cms.k12.nc.us) or Mecklenburg County at 704-336-7759, [Nezzie.Russell@MecklenburgCountyNC.gov](mailto:Nezzie.Russell@MecklenburgCountyNC.gov), [www.wipeoutwaste.com](http://www.wipeoutwaste.com)



## STUDENTS DESIGN RECYCLING LOGO AND SLOGAN

CMS students participated in creating a recycling logo and slogan for the district's recycling program. The district received 52 entries from students from around the county. The winning slogan was created by Harding University High School student Simone McDuffie and the logo was created by Hawthorne High School student Kyleigh Varvel. The new logo will be used on promotional material starting in the 2010-2011 school year, including on recycling posters published for all classrooms and other areas.



### PLAQUES AND CHECKS PRESENTED TO SCHOOLS

Jennifer Roberts, chair of the Mecklenburg County Board of County Commissioners presented plaques to the students, made of recycled bicycle tires and wheels, and spoke about the new single-stream recycling program at the ceremony held at the Hawthorne High School media center. "The new recycling program will allow more materials to be recycled in simple fashion decreasing waste entering our landfills and increasing participation in the program" said BOCC Chair Roberts. Republic Waste Services sponsored the contest and awarded \$1,000 to both schools during the Earth Day ceremony.



### ADDITIONAL RECYCLING INCENTIVE PROGRAMS

Many students in the CMS recycling program helped their schools recycle more by bringing in additional recyclables such as cans and bottles and plastic bags and ink cartridges. Last year, JM Alexander Middle School was awarded \$1000 for helping to recover over 3 tons of containers from middle schools throughout the district. Winding Springs Elementary received \$1000 as the top recycler from Harris Teeter as students brought in 8.6 million plastic bags in only three months.

LOOK FOR MORE OPPORTUNITIES TO AWARD YOUR RECYCLERS AT  
[WWW.WIPEOUTWASTE.COM](http://WWW.WIPEOUTWASTE.COM).

# HOW ROOTS AND SHOOTS MAKES A DIFFERENCE AT BUTLER HIGH

*Submitted by Shari Mudd, Science Department Chair, Teacher, Principal: Will Leach*

**Sometimes, just a few dedicated students can make a big difference.** Several years ago, two teachers at Butler High School started a chapter of Jane Goodall's International Service Program for young people – *Roots and Shoots*. The mission of the program is to promote



understanding and caring of animals, the environment, and the human community. Over the years, members of the program have completed service projects pertaining to each of the three areas and have received recognition from the international organization.

One of the most successful programs implemented is the can and bottle recycling program. While the paper recycling program has been consistently successful, there were obstacles to putting a can

and bottle recycling program in place that had to be overcome. The biggest obstacle was how to ensure that the containers ONLY were used for recyclables and were not contaminated with trash. When containers were left unattended in the cafeteria, they inevitably became filled with trash and the material was subsequently unable to be sent to the recycling center.

## MEMBERS OF ROOTS AND SHOOTS DEvised A SOLUTION TO THIS PROBLEM BY ENLISTING THE HELP OF WILLING TEACHERS AT THEIR SCHOOL.

- First, plastic collection containers were purchased using club funds.
- Then, teachers were asked to place these containers in their classrooms on a voluntary basis.
- These teachers then promoted the recycling program to their students, asking them to bring empty cans and bottle to their classrooms, instead of disposing of them in the trash.
- The teachers with recycling bins in their classrooms empty them into the larger bins that are conveniently placed in the faculty common areas around campus.
- *Roots and Shoots* members collect the recyclables twice a month and place them in the appropriate area for collection.

This program has been successful due to the cooperation of the school's faculty and administration, students who are willing to hold on to their empty beverage containers until they go to a room where recycling is available, and of course the dedicated members of *Roots and Shoots* who volunteer their time for school-wide collection benefiting the school and the environment.

“Roots creep underground everywhere and make a firm foundation. Shoots seem very weak, but to reach the light, they can break open brick walls. Imagine that the brick walls are all the problems we have inflicted on our planet. Hundreds of thousands of roots & shoots, hundreds of thousands of young people around the world, can break through these walls. We CAN change the world.”  
- Dr. Jane Goodall



**IN AN EFFORT TO FURTHER EXPAND THE RECYCLING PROGRAM, THIS YEAR ROOTS AND SHOOTS BEGAN A CAMPAIGN TO COLLECT BATTERIES FOR HAZARDOUS WASTE DISPOSAL OR RECYCLING.**



The issue of keeping batteries out of landfills was publicized through the use of posters around the school and staff e-mail. Members of *Roots and Shoots* then placed simple boxes in each faculty common area for battery collection.

Not only have faculty members begun collecting dead batteries from calculators and other electronics at school, but have also started bringing in batteries from home for proper disposal. *Roots and Shoots* club members or sponsors periodically collect the batteries and take them to a local hazardous waste facility.

Although a small club, *Roots and Shoots* at Butler High School has spearheaded environmental responsibility through its various service projects. Our devoted members will continue to find ways to advocate for awareness and change.

**EDITORIAL COMMENT**

*Roots and Shoots* activity illustrates the fact that the interest and energy of a small group can make a difference. In my experience, as university student body president, campus activity coordinator, board of education member and master sergeant-at-arms of the United States Student Association, I learned **every student can make a difference**, as long as you have the desire to try and persist.

Join or start a club, write your congressional delegation, comment at a city council meeting, volunteer to collect batteries or distribute posters. Do something. Do it. Act!

You can make a difference, but only if you try. There is nothing more important than your energy, ideas and spirit. Use them well!!!- Brian Kasher, CET.



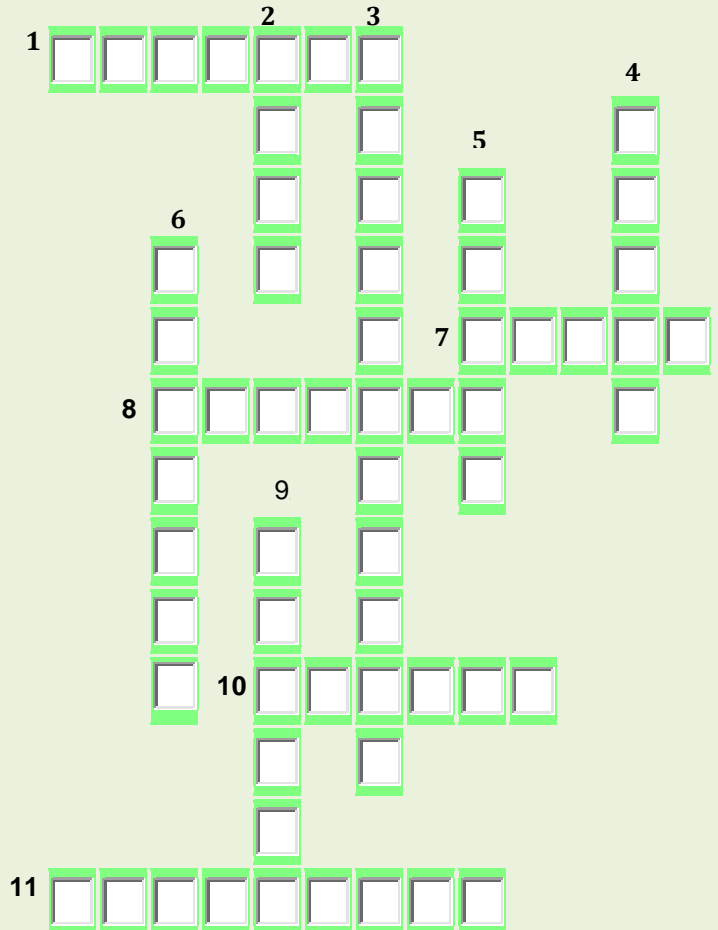
# RECYCLING & WASTE CROSSWORD PUZZLE

## Across

1. A product can be considered \_\_\_\_\_ when it lasts a long time.
7. To use something again for the same purpose or a new purpose.
8. What a pile of decayed food scraps, leaves and grass turn into.
10. You can \_\_\_\_\_ old toys to needy children instead of throwing them away.
11. Comes in disposable and rechargeable varieties

## Down

2. If you buy one large bag of potato chips instead of five small bags, you are buying in \_\_\_\_\_.
3. Your world, surroundings, and source of life and health.
4. Many items found in your \_\_\_\_\_ can be recycled into valuable new products.
5. Fossil fuels, such as coal, oil, and natural gas that are used to manufacture products and heat our homes, come from the \_\_\_\_\_.
6. To collect used materials to make into new products rather than throwing them away.
9. To decrease the amount of trash you throw away.



CROSSWORD ADAPTED FROM: <http://www.epa.gov/osw/education/kids/games/crossword/> SOLUTION ON PAGE 81

# CMS FLOURESCENT LAMP RECYCLING PROGRAM

*(Adapted in part from USEPA factsheet on fluorescent bulb recycling)*

Charlotte Mecklenburg Schools Custodial Services Department has joined with thousands of recycling centers around the country by starting CMS's own in-house fluorescent lamp recycling program. As of summer 2010, CMS Custodial Services has recycled in excess of 11,000 fluorescent lamps. This is a significant accomplishment for the first year of the program.

Fluorescent bulbs provide lighting at all CMS schools and office buildings. Although lighting manufacturers have greatly reduced the amount of mercury used in lighting over the past 20 years, they are not yet able to completely eliminate the need for mercury.

While mercury-containing bulbs contain small amounts of mercury (an average of 5 milligrams or about 1/100th of the amount of mercury found in a mercury fever thermometer), they are one of numerous sources that collectively impact the environment during disposal.



Nationwide, over 670 million mercury-containing bulbs are discarded each year. Most of these bulbs are still discarded with municipal solid waste that is ultimately land filled or incinerated. These disposal methods can lead to a release of elemental mercury into the environment through breakage and leakage and ultimately contaminate the food chain. These bulbs should, therefore, be recycled after they burn out.

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## **CMS CUSTODIAL SERVICES HAS RECYCLED IN EXCESS OF 11,000 FLOURESCENT LAMPS IN THE FIRST YEAR OF THE PROGRAM**

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CMS recycles virtually all components of fluorescent bulbs. The metal end caps, glass tubing, mercury and phosphor powder can all be separated and reused by the vendor who picks up the recycled materials. Recyclers can sell the metallic portions as scrap metal. The recycled glass can be remanufactured into other glass products. The mercury can be recycled into new fluorescent light bulbs and other mercury-containing devices.

Fluorescent bulbs that are discarded in the trash will break and some mercury will be released into the environment. However, the use of mercury-containing bulbs for general indoor lighting

makes good environmental sense. These bulbs are significantly more energy-efficient than incandescent bulbs because they require less energy to provide lighting. Electrical generation from coal-burning power plants also releases mercury into the environment. The use of fluorescent bulbs in place of incandescent bulbs lowers energy use and thus reduces the associated release of mercury from many power plants. Fluorescent bulbs are also more cost effective because they last up to 10 times longer than incandescent bulbs. EPA strongly encourages the recycling of all mercury-containing bulbs after they burn out.

The CMS E-Lampinator recycling device rests atop a standard 45-gallon drum and can process all types of bulbs including CFL's. Once the drum is full, it is picked up for secondary processing and recycling.

**CHECK WITH YOUR LOCAL HARDWARE STORE FOR RECYCLING COMPACT AND TUBE FLUORESCENT BULBS FROM HOME.**

**CHARLOTTE-MECKLENBURG SCHOOLS**

**Items that WILL be accepted for RECYCLING:**

**REMEMBER:**  
Empty and rinse all containers.

**Items that WILL NOT be accepted for RECYCLING:**

|                        |                              |                            |
|------------------------|------------------------------|----------------------------|
| NO Pizza Boxes         | NO Plastic Food Trays & Cups | NO Batteries               |
| NO Bottle Caps or Lids | NO Pots & Pans               | NO Takeout Food Containers |
| NO Plastic Bags        | NO Glassware                 | NO Light Bulbs             |
| NO Shredded Paper      | NO Paper Plates              | NO Wire Hangers            |
| NO Ceramics            | NO Napkins                   | NO Styrofoam               |

**www.WipeOutWaste.com**

**BE COOL!  
RECYCLE  
IN SCHOOL**

# HOW DRUID HILLS ELEMENTARY FOSTERS LEADERSHIP AND RESPONSIBILITY THROUGH RECYCLING

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*Submitted by: By: Jill Reicher M.Ed, NBCT, Talent Development Teacher, Druid Hills Elementary*

**The fifth graders** at Druid Hills Elementary, a Title 1 school, with Mrs. Beverly Newsome as Principal, had an impact on the reduction of paper waste this year!

The coordinator of the program, Jill Reicher, the school's Talent Development Teacher went to all fifth grade classes looking to find students motivated to take on leadership and environmental volunteer responsibilities. Students applied for the job in September, not really understanding just how many new responsibilities they would be taking on for the year.

The application asked the students why they wanted the job and what qualities each student thought they would bring to the program. The result was a wonderful, energetic, and enthusiastic group of girls giving up their own time to better the school and our environment.

After going through the applications with the teachers, ten student volunteers were chosen. At the first meeting, partners were assigned so that everyone had the help needed to do the work. Then each partnered group was assigned several classes to work with. Each group would go into the class and give a prepared talk on what recycling is and what goes into the recycling bin. In addition, each class was given an instructional poster to reinforce what gets recycled.

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## VISIBLE IMPROVEMENTS IN WHAT THE STUDENTS RECYCLED PLUS THE VERY IDEA THAT STUDENTS AT THE SCHOOL WERE THINKING ABOUT WHAT THEY ARE DOING IN TERMS OF NATURAL RESOURCES, CREATED ENERGY AND MOTIVATED THESE VOLUNTEER STUDENT LEADERS TO STAY ON TASK

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The volunteers emptied classrooms bins every week into five large rolling containers in strategic places in the hallways. Some students then worked with Ms. Reicher on a weekly basis moving those five large bins to the back to allow for access to the outside recycling dumpster.

The program saved an estimated 10% of the paper trash by recycling, but, it's the growth and the development of leadership skills in the students that had the greatest impact on how and why Druid Hills Elementary impacted the reduction of paper waste this year.



The fifth grade students also hosted a brain storming session on development of the district environmental management system. Students provided input as to what they believe is important for the district to work on such as: more students involved in recycling, litter prevention and energy conservation programs. Each student received a certificate from the district for their help in developing the program

Please recognize Ms. Estabrooks, a classroom teacher, who also participated in Druid Hills recycling program.



# ...it begins with you and me!

## R-E-C-Y-C-L-E *(To the tune of RESPECT)*

What you want, a clean environment  
 What you need, to make it happen  
 All we're asking's for you to recycle  
 Hey baby, reduce and reuse

Ain't gonna tell you wrong, recycling's right  
 Everybody get behind it, with all your might  
 All we're asking's for you to recycle  
 Hey baby, reduce and reuse

We're here to tell you, recycling saves money  
 And protects the earth, what a deal honey  
 All we're asking's for you to recycle  
 Hey baby, reduce and reuse

Ain't gonna tell you wrong, recycling's right  
 Everybody get behind it, with all your might  
 All we're asking's for you to recycle  
 Hey baby, reduce and reuse

Ooh recycling, helps keep things green  
 Guess what, we need you on the team  
 All we're asking's for you to recycle  
 Hey baby, reduce and reuse

R-E-C-Y-C-L-E, it begins with you and me  
 R-E-C-Y-C-L-E, it's our responsibility  
 All we're asking's for you to recycle  
 Hey baby, reduce and reuse



[WWW.RECYCLEGUYS.ORG](http://WWW.RECYCLEGUYS.ORG)

# DEMOLITION AND RESTORATION PROJECT SUSTAINABILITY?

*Submitted by Stephanie Kegly of Environmental Holdings Group, A Strategic Plan 2014 Sponsor*

**Environmental Holdings Group, LLC (EHG)** performed nine remediation and demolition projects for Charlotte Mecklenburg Schools (CMS) between 2009-2010. EHG averaged an 78 percent recycling rate to maximize the overall site sustainability for every CMS project. There are five basic methods that are utilized in support of every project to maximize the volumetric recycling rate.

## PUSH THE ENVELOPE

1. Often the building owner will identify the scope of work without recognizing the reclamation potential of the entire site. Studying the construction of the existing building and the landscape is very critical. Some basic questions can reduce waste and save the owner critical time and money. Below is an example question.

**Can the masonry be recycled as backfill on site?** Recycling masonry onsite will provide the opportunity to process and reuse existing materials. At the same time we can also reduce the need for importing suitable soils and other materials for backfill and aggregate. The reduction in cost and environmental impact is tremendous. Eliminating the transportation of masonry offsite and importing soils produces air quality concerns, fuel consumption, damage to the roadways, tipping fees and potential erosion control issues. Recycling existing masonry onsite can produce a 30% cost savings and increase the site sustainability by as much as 40%.

## LOOK OUTSIDE THE BOX



2. Generally the only components that are identified for reclamation are masonry and ferrous and non-ferrous metals. By studying the composition of the building we are able to identify all potential salvageable materials. Checking for hardware, granite, appliances, slate, doors, ceiling tiles, hardwood floors, fixtures, carpet and brick. EHG often partners with habitat for humanity to salvage cabinetry, hardware, doors and appliances. Enough material is often recovered to build one new home. A donation to Habitat for Humanity also produces tax incentives.

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## DO YOUR HOMEWORK

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3. An excellent waste management team is imperative. EHG and CMS partner with the community, subcontractors and suppliers to maximize the green effort. Our subcontractors reclaim items like gypsum board, glass, ceiling tiles, hardware, cardboard, doors, old machinery, asphalt, rubber and many more products. Many organizations will remove the material for free or even pay for it. EHG recently reclaimed hardwood flooring from a site and donated the material for reuse to build park benches for a local Mecklenburg LEED project. The reuse of materials like this can produce tax incentives for building owners on future projects.



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## SCHEDULING THE PROJECT

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4. Effective scheduling is critical to the overall waste management plan. Timely and efficient scheduling of your suppliers and subcontractors will decrease the man-hours necessary to complete the project and increase the overall safety and reclamation output.

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## MAKE THE GRADE

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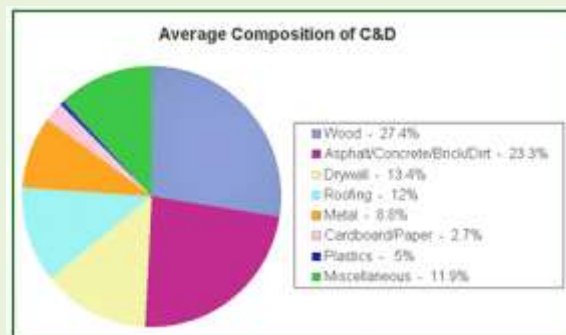
5. Tracking the recovered material is essential to the site sustainability of the project. Documenting the segregated and reclaimed materials from the construction debris will allow the contractor/owner to identify inefficiencies and provides historical data on future projects. EHG recently completed demolition of an older Matthews Elementary School building demolition project. EHG **salvaged over 10,000 linear feet of ceiling grids, 7,500 tons of ferrous and non-ferrous metal and 6,000 tons of masonry producing a 78% reclamation rate.** The industry recycling average for construction is 48%. CMS projects involving EHG are well above the national construction demolition average.

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## COMPONENTS OF C&D WASTE

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The average composition of construction and demolition waste disposed of is illustrated in the following chart. Most of these materials could be diverted from disposal and either reused or recycled.





## HOW TO FIND THE REGIONAL ENVIRONMENTAL INITIATIVES OF THE CENTRALINA COUNCIL OF GOVERNMENTS

### Sustainable Environment for Quality of Life (SEQL)



A federal-state-local partnership designed to enhance the quality of life for residents in the 15-county greater Charlotte region in NC and SC.

Through SEQL, local officials have worked with the U.S. Environmental Protection Agency (EPA) and the states of NC and SC since 2003 to help support ongoing efforts to make the greater Charlotte region environmentally cleaner, more livable for its residents and a more attractive area for businesses to locate.

A key aspect of the SEQL effort is helping incorporate environmental concerns in local decision making throughout the region. Through this project, elected officials, citizens and businesses are working together to address a range of issues associated with rapid growth and urban and suburban sprawl. SEQL also has helped bring federal and state resources to bear in helping local officials address environmental challenges. It has proven to be a model that other areas can adopt as they confront quality of life and environmental challenges associated with rapid growth. Action items have been developed relating to air quality, water resources and sustainable growth which can be used by local government, business and industry.

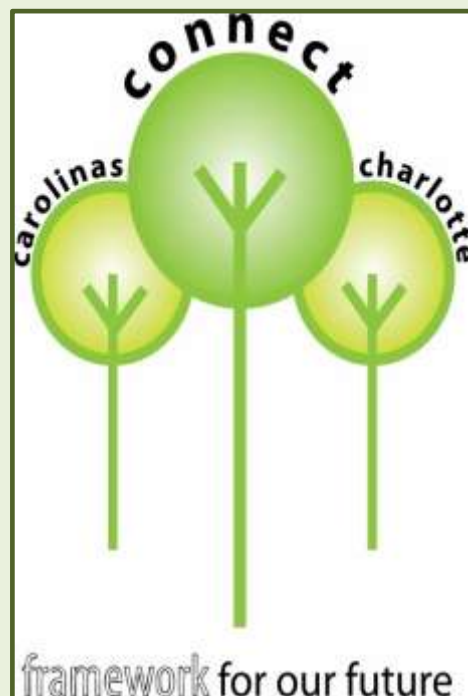
For additional information: 704-372-2416 or [www.seql.org](http://www.seql.org)

### Carolinas - Charlotte - CONNECT

A visioning project led by the Centralina and Catawba Regional Councils of Government and the Charlotte Regional Partnership for the Greater Charlotte Bi-State Region. It CONNECTS member governments, the private sector, the non-profit sector and all stakeholders with an interest in the region's future. Communities

n the region are "growing together" so that our jurisdictional boundaries now connect and are less visible to the region's residents. Our region is projected to add over 1.5 million people—virtually doubling the region's population—by 2030. This kind of growth brings benefits and challenges to us all (traffic, infrastructure issues, schools, loss of green space, how to keep downtowns going). To solve and address these problems most effectively, we need to work together collaboratively and creatively and doing so requires that we know what we have in common and where we want to go. We need "common ground". That's what CONNECT is...a process for establishing our common ground and building a shared vision that can provide the basis for collaborative action, mutual support and realization of community and regional goals.

For additional information: 704-372-2416 or [www.cogsconnect.org](http://www.cogsconnect.org)



## Clear the Air for Kids!

**Clear the Air for Kids!** is an initiative of Centralina Council of Governments (CCOG – [www.4ccog.org](http://www.4ccog.org)) to educate parents and school administrators about the importance of reducing bus and car emissions around schools. Reducing air pollution in the CCOG region has been a main focus of the Sustainable Environment for Quality of Life (SEQL – [www.seql.org](http://www.seql.org)) program developed by CCOG.

**Clear the Air for Kids!** was developed as a partnership with CCOG and Clean Air Carolina. The program provides materials for school newsletters, PTA programs, handouts which encourage parents to stop idling vehicles on school grounds and bookmarks for third graders – “10 things kids can do for the environment”. Packets were provided for each principal with background information on bus emissions and air quality.



Signs have been posted at each school in the 15 school districts in the region (Anson, Cabarrus, Catawba, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly and Union counties) to encourage parents to provide a healthier environment for children and school staff.

The “Turn off your engines – kids breathe here” signs were provided by a grant to CCOG from the NC Department of Environment and Natural Resources (NCDENR). Over 338,000 students, their parents and educators have been touched by this outreach programming.

For additional information: 704-372-2416 or [www.4ccog.org](http://www.4ccog.org)

## Regional Storm Water Partnership

With funding provided by local governments and NC’s Clean Water Management Trust Fund, a partnership of sixteen communities in five counties has been created to address storm water needs at the local and regional levels. The partnership is managed by the Centralina Council of Governments. Its activities include:

- Producing videos on storm water issues that are shown twice weekly on television and working with media outlets in the region to promote good storm water practices.
- Distribution of storm drain marking kits and adopt-a-stream supplies to Partnership communities.
- Funding two innovative storm water demonstration projects in Indian Trail and Gaston County.
- The creation and distribution of public education pamphlets.



For additional information: 704-372-2416 or [www.4ccog.org](http://www.4ccog.org)

## Regional Environmental Database

Centralina Council of Governments has compiled a database of organizations in the greater Charlotte region and numerous state organizations which provide information and assistance on environmental stewardship issues.

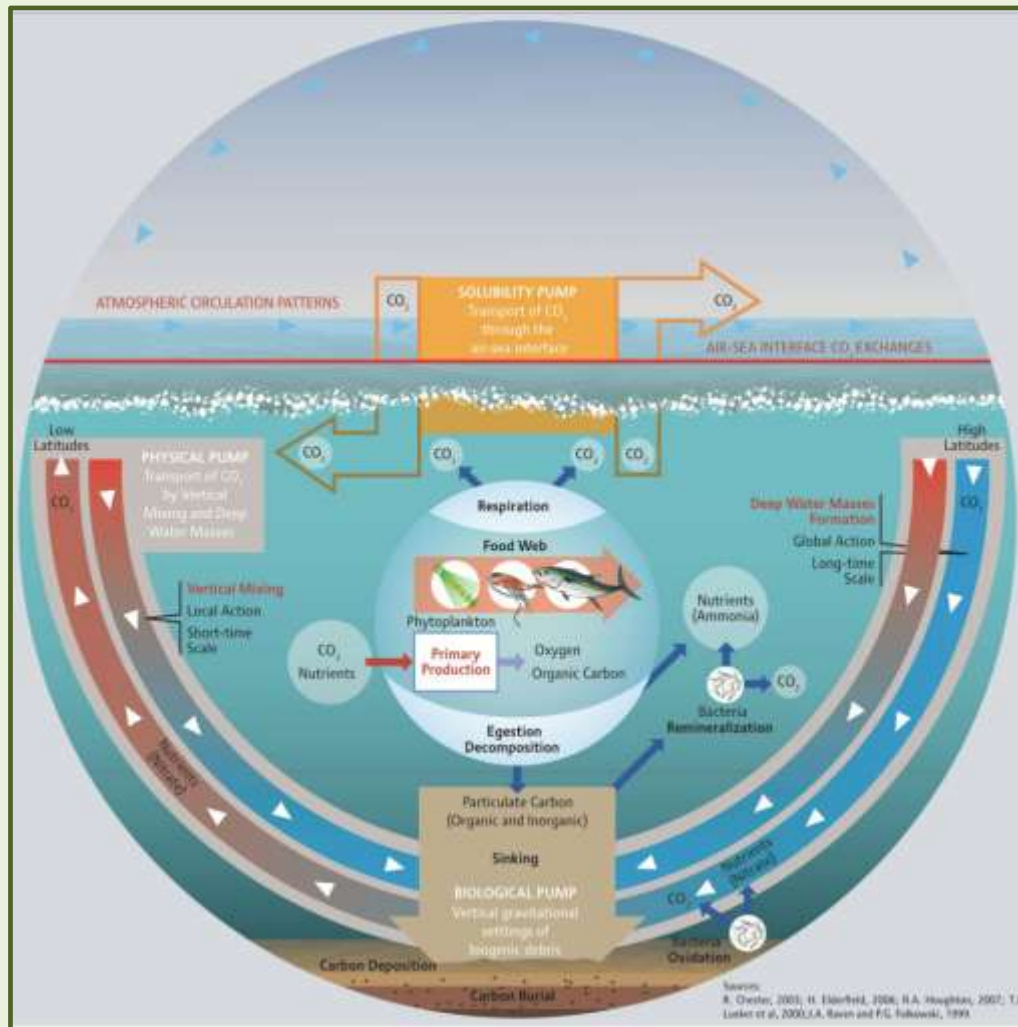
The database lists organization contact information as well as the general mission of the organizations. It is available on the CCOG web site at [www.4ccog.org](http://www.4ccog.org).

## Centralina Clean Fuels Coalition

Centralina Council of Governments (CCOG) staff directs the Centralina Clean Fuels Coalition (CCFC) using matching funds from CCOG and grant funds from the North Carolina State Energy Office, the US Dept of Energy and others. While housed at CCOG, the 9-county CCFC has developed from an idea to a DOE designated Clean Cities member in 2004, to a regional leader in the promotion of alternative fuel and clean transportation technologies. The purpose of the Clean Cities program and the CCFC is to: reduce dependence on foreign oil/provide greater fuel choices; advance clean air objectives; create new jobs and commercial opportunities; facilitate alternative fuel vehicle (AFV) production; expand AFV refueling infrastructure; and increase awareness of AFVs & hybrids, fuel economy, and idle reduction technology.



For additional information contact Jason Wager or Emily Parker at 704-372-2416 or visit [www.4cleanfuels.com](http://www.4cleanfuels.com)



Sources: R. Chester, 2003; H. Elderfield, 2006; R.A. Houghton, 2007; T.J. Lueker et al, 2000; J.A. Raven and P.G. Falkowski, 1999. Cartographer Giulio Frigieri

FROM the IPCC <http://maps.grida.no/go/graphic/atmospheric-circulation-patterns1>

## HOW TO SUBMIT RECOMMENDED EMS PROCEDURES

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Do you have an idea on how the district can improve environmental performance? If you do please submit a proposed environmental management procedures for the review by the environmental charter leadership team. Send proposed procedures to: [em2@cms.k21.nc.us](mailto:em2@cms.k21.nc.us).

Please use the outline below for drafting proposed procedures. This outline is being used by each business unit developing environmental controls for the district. Draft procedures will be reviewed and or edited by CMS Environmental Management and considered by the Environmental Charter leadership team for inclusion in the CMS EMS.

### **1.0 Purpose**

(Paragraph narrative of the purpose of the procedure: To establish an operation control for the reclaiming of discarded computers.)

### **2.0 Applicability**

(State to whom the procedure applies)

### **3.0 Coordination**

(Specify what job title is responsible for this procedure)

### **4.0 Reference Documents**

(List any other documents that are related to this procedure or which may be referenced in this document including regulations....related documents are also under development at this time. We will be sure to cross reference the records procedures and others prior to publication.)

### **5.0 Operational Procedure**

(Detail the specifics necessary to execute this procedure)

### **6.0 Equipment and Materials**

(Identify equipment and materials needed to perform this procedure. This item may not apply depending on the scope and purpose of the procedure)

### **7.0 Training**

(Identify training needed to perform this procedure)

### **8.0 Forms**

(List any forms that will be used by this procedure: If you have a form include with the draft.)

### **9.0 Statistics**

(List any measures that will be compiled related to this procedure. For instance: number of chemical spills annually; number of employees trained annually; number of reams of recycled paper ordered annually, gallons of oil recycled annually)

### **10.0 Records**

(List records that will be kept in association with this procedure and for how long they will be kept; cross reference to document control. )



**Environmental Holdings Group, LLC • [ehgllc.com](http://ehgllc.com)**

**Excellence in Environmental & Demolition Services 866-EHG.LLC1**

