



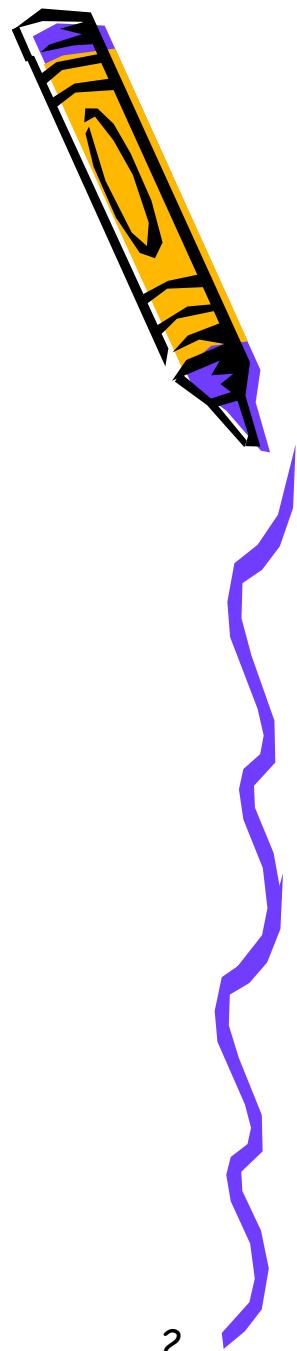
Greening Duval Schools

Susan Carew, EI, LEED AP

Director of Facility Engineering & Energy

February 16, 2012

Greening DCPS

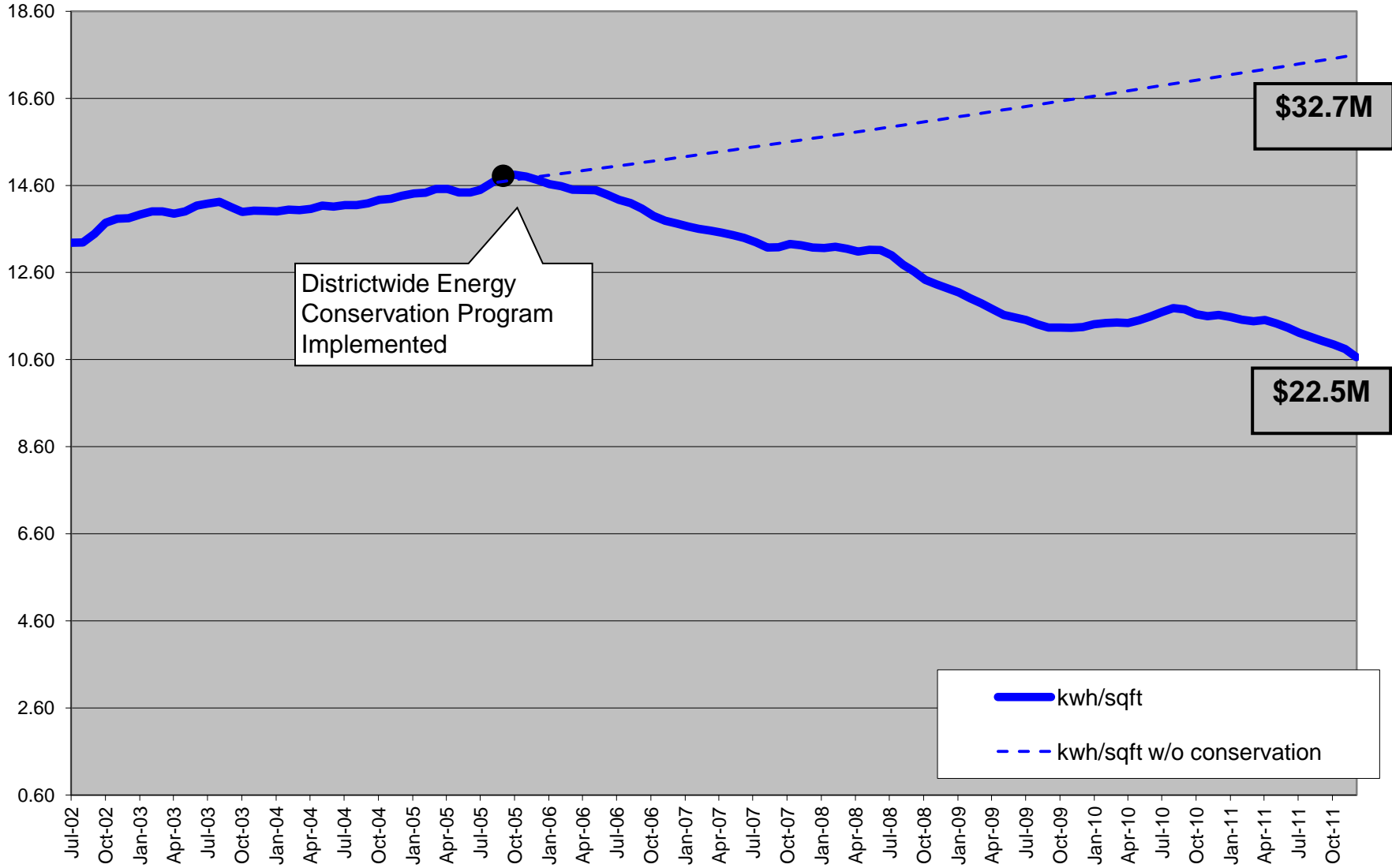


- **Why & Where?**
 - **Utility Benchmarking**
- **How?**
 - EMCS & Occustats
 - Chiller Plant Modifications
 - Commissioning
 - Lighting Retrofits & Controls
 - Behavior Change
- **Awareness/Behavior**
 - **Green Champions!**

Greening DCPS



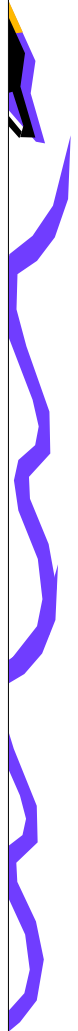
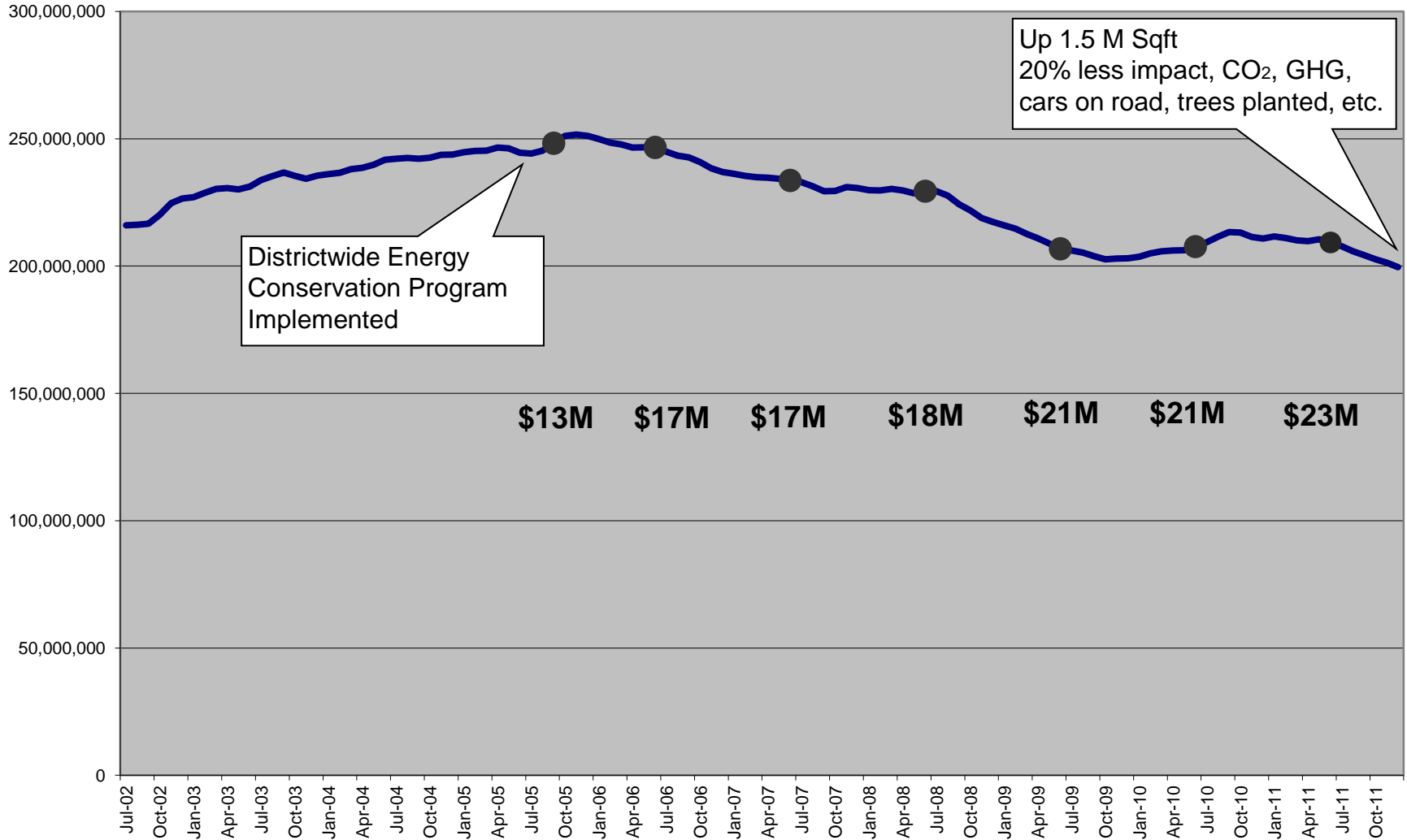
DCPS Energy Consumption per SQFT



Greening DCPS



DCPS 12 Month Energy Consumption Trend



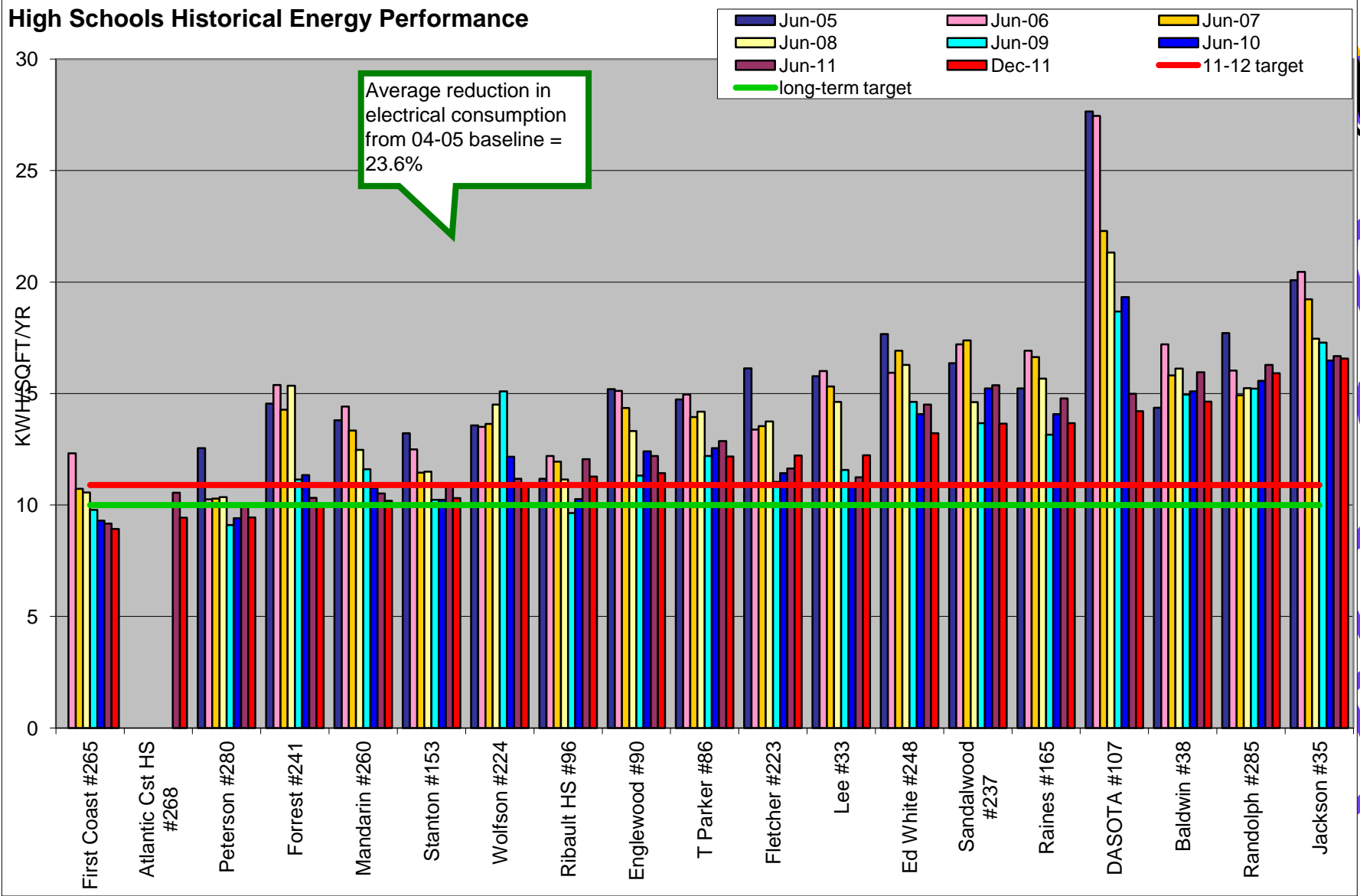
Utility Benchmarking



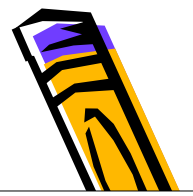
Average				14.8		14.4		13.4		13.1		12.1		11.50	???	
Top 10% Cut Off				18.3		17.4		16.5		15.8		15.2		14.40	???	
Name	#	Type	Maint. Station	04-05 kwh/sqft	05-06 Completed Energy Measures	05-06 kwh/sqft	06-07 Completed Energy Measures	06-07 kwh/sqft	07-08 Completed Energy Measures	07-08 kwh/sqft	08-09 Completed Energy Measures	08-09 kwh/sqft	09-10 Completed Energy Measures	09-10 kwh/sqft as of 5/10	10-11 Energy Plan	% change from 04-05 baseline
DASOTA	107	H	2	27.5	Installed 28 occustats, optimized EMCS	26.5	adjusted EMCS schedules	21.5	chw plant mods, new chiller, optimize EMCS	20.6	optimized schedules	18.92	cv-w in common areas, emcs upgrade, occ in common areas	18.46	occ sensors in cr; monitor results; repl ahus	-32.9%
Fort Caroline	238	M	2	18.3		19.8	Install cooldown loop, optimized EMCS; 6/07	16.6	ps loop mods, new chiller, occustats in portables	13.4	cv to vfd in common areas; new uvs/fcus; vrv for media & some admin; new gym lts and occ sensors tied to emcs	16.93	repipe chw, vrv in main admin; repl remaining uvs	18.07	occ sensors in cr; repl common areas ahus and repl ht	-1.1%
Grand Park Cent	14	S	1	12.1		13.3		14.5	install 33 occustats	17.5		15.02		16.77	cv-w common areas; admin occ sensors	38.6%
Gregory Drive	243	E	3	15.1	Foyt rescheduled 5/06	16.5	optimized EMCS	15.4	install 9 occustats	17.2	installed new chiller	16.07	cv to vfd in common areas; occ sensors in common	16.00	occ sensors in cr	6.3%
Highlands	244	M	1	18.1	optimized EMCS; thermaserve evaluated chw plant; (no mods needed)	16.2		15.2		16.5	inst occustats in 7 portables;	16.16	indoor ECMs; cv to vfd in common areas; chw plant programming; inst 2 new chillers	15.79	occ sensors cr and common areas	-12.7%
Atlantic Beach	65	E	2	21.2	installed 2 occustats	20.0	optimized EMCS; chw plant mods; 6/07	20.0	upgrade control wiring to plant	17.0	installed new emcs, Lvs; seq mods for common area AHUs, occ sensors in hallways, restrooms	16.89	need isolation valves and controls mods on CHW plant	15.50	occ sensors in cr; repl 2 chillers	-27.0%
A.P. Randolph Ac	285	H	1	17.8	Foyt rescheduled 10/05	16.0		14.9		15.2	optimize EMCS; new hvac in common areas	15.48	networked EMCS; new HVAC in bldg C; repl 2 chillers in science bldg	15.42	T12-T8 by dcps; optimize EMCS; inst occ sensors in common and cr	-13.3%
Marine Science C	32	S	2	14.0		14.3		14.3		13.2	repl split systems	13.12		15.26	install 10 occustats; mod unocc temps	9.1%
Pine Estates	250	E	1	15.0		16.9		16.1	optimize EMCS; minisplit	15.5	optimize EMCS;	14.59		15.00	cv to vfd in common areas	-0.2%
Sheffield	242	E	1	16.2		16.1		14.9		15.5	optimized schedules	15.60	TAB admin ahu; repl 1 chiller	14.94	cv to vfd in common areas; fix admin ahu per tab; cr occ sensors	-7.9%
Chets Creek	264	E	2	18.4	Sunbelt, then new chiller	16.6	optimize EMCS; new chiller	14.1	optimize EMCS; chw PS loop mods, new chiller;	14.7	optimize EMCS;	15.98	optimize EMCS; cv to vfd in common areas; re-cx plant; inst occ sensors in common areas	14.79	duct return; cr occ sensors;	-19.7%
Paxon MHS	75	H	3	16.3	Installed 66 occustats 9/06; Foyt rescheduled EMCS 10/05	17.0		16.7	chiller plant PS mods; gym lts	16.0	igv to vfd in some common areas; connect ESE to main plant; controls mods; adjust CHW EMCS; repl split systems	10.60	café lighting retrofit	14.68	T12-T8 by dcps; igvto vfd in common areas; remove air cooled chillers; install new water cooled chiller; occ sensors	-9.9%
Greenland Pines	249	E	2	13.6	emcs optimized 7/14/06	15.4		14.3	chw ps loop mods; new emcs	16.7	vfds on admin and rexc admin, lts in common areas	15.47	optimize andover in 2 new bldgs, repl all fcus; inst 10 pccda units, lights in cr, occ sensors in cr	14.66	repl 2 chillers	7.7%
Andrew Jackson	35	H	1	18.0		18.1		17.0	optimize EMCS; occustats in portables; PS loop mods; igv to vfd in common areas; gym lts, minisplit	15.4	optimize schedules	14.68	optimize EMCS; cv to vfd in common areas	14.65	more cv to vfd in common areas; repl fcus	-18.5%
Baldwin	38	H	3	14.3	Installed 32 occustats; Foyt rescheduled 5/06.	16.9	optimize EMCS	15.5	repl vavs	15.8	T12-T8 by dcps; inst vfd on gym ahu	14.80	cv to vfd in common areas	14.40	monitor; repl 1 chiller	1.0%
Hendricks Avenue	71	E	2	16.2	installed 30 occustats	16.0		14.9		15.1	optimized schedules	15.25	Optimize EMCS; chw plant ps loop mods	14.31	cr occ sensors; monitor CR occ sensors tied to emcs	-11.8%
Oceanway	62	M	1	19.4	Optimized EMCS 10/05	17.4	chw ps loop mods done 6/07	16.3	Optimize EMCS	14.8	optimize schedules	13.69		14.29	occ snesors cr and common areas	-26.4%
Kernan Trail	231	E	2	16.9		18.2	Optimized EMCS	14.6		15.3		14.70		14.21	occ snesors cr and common areas	-15.7%
Sandalwood	237	H	2	16.4		17.2	replaced EMCS; optimized EMCS; 4/07	17.4	ps loop mods; new chiller, minisplit	14.6	T12 to T8 by trussell, meters on emcs; gym lts occ sensors tied to emcs; cv-w on gym	13.49	lighting retrofit partial	14.04	occ sesnors in CR and hallways, finish retrofit	-14.2%

Utility Benchmarking

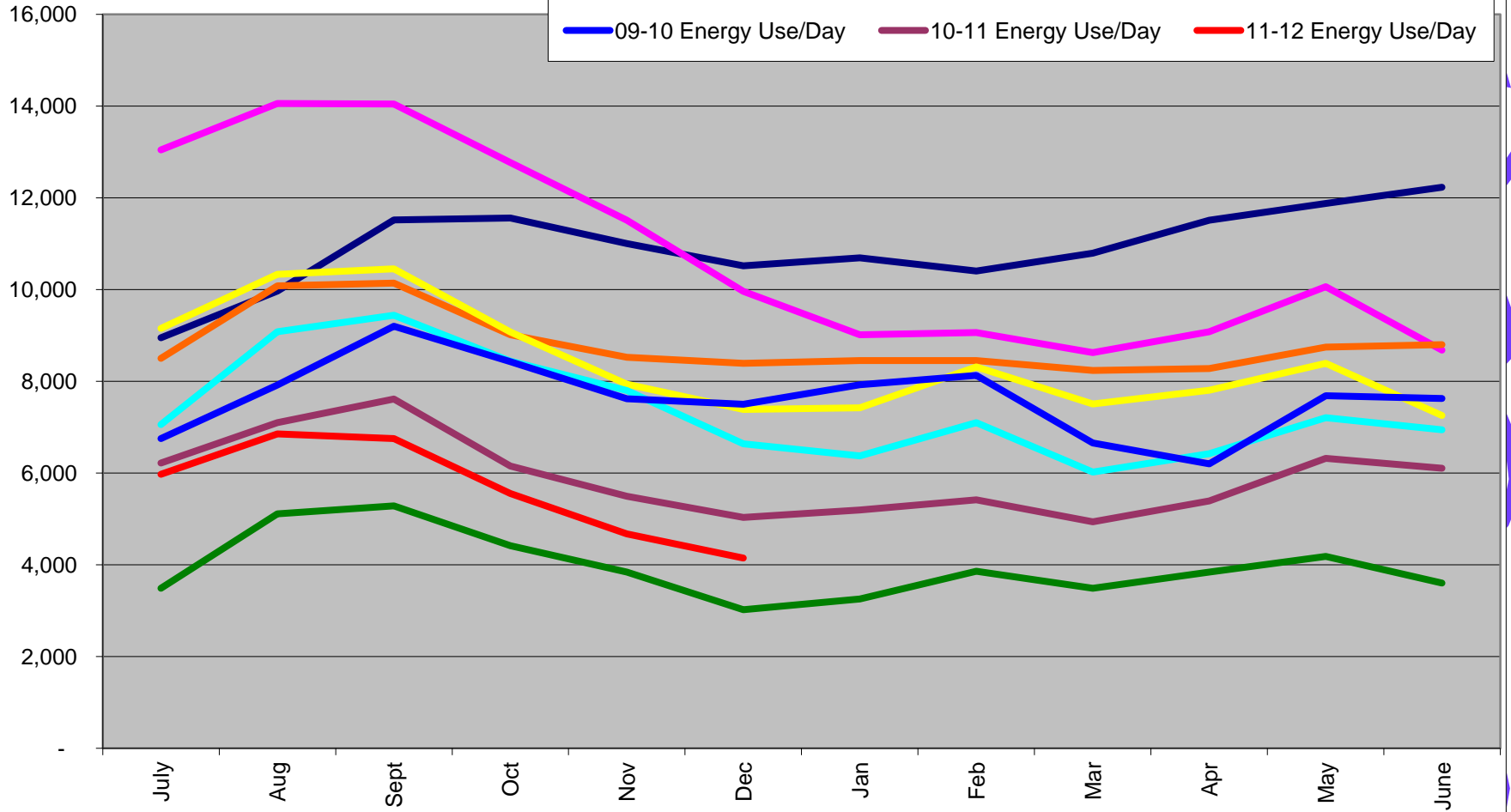
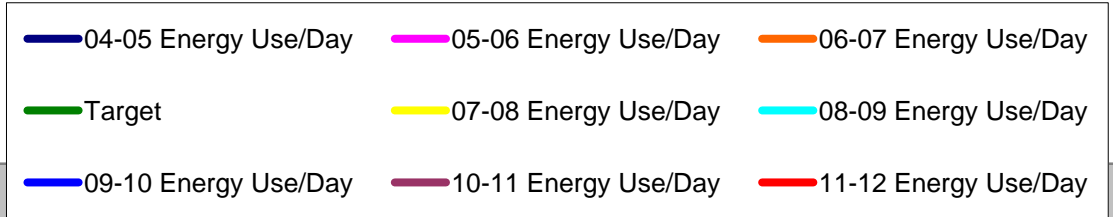
Entropy - tendency to move from order to disorder



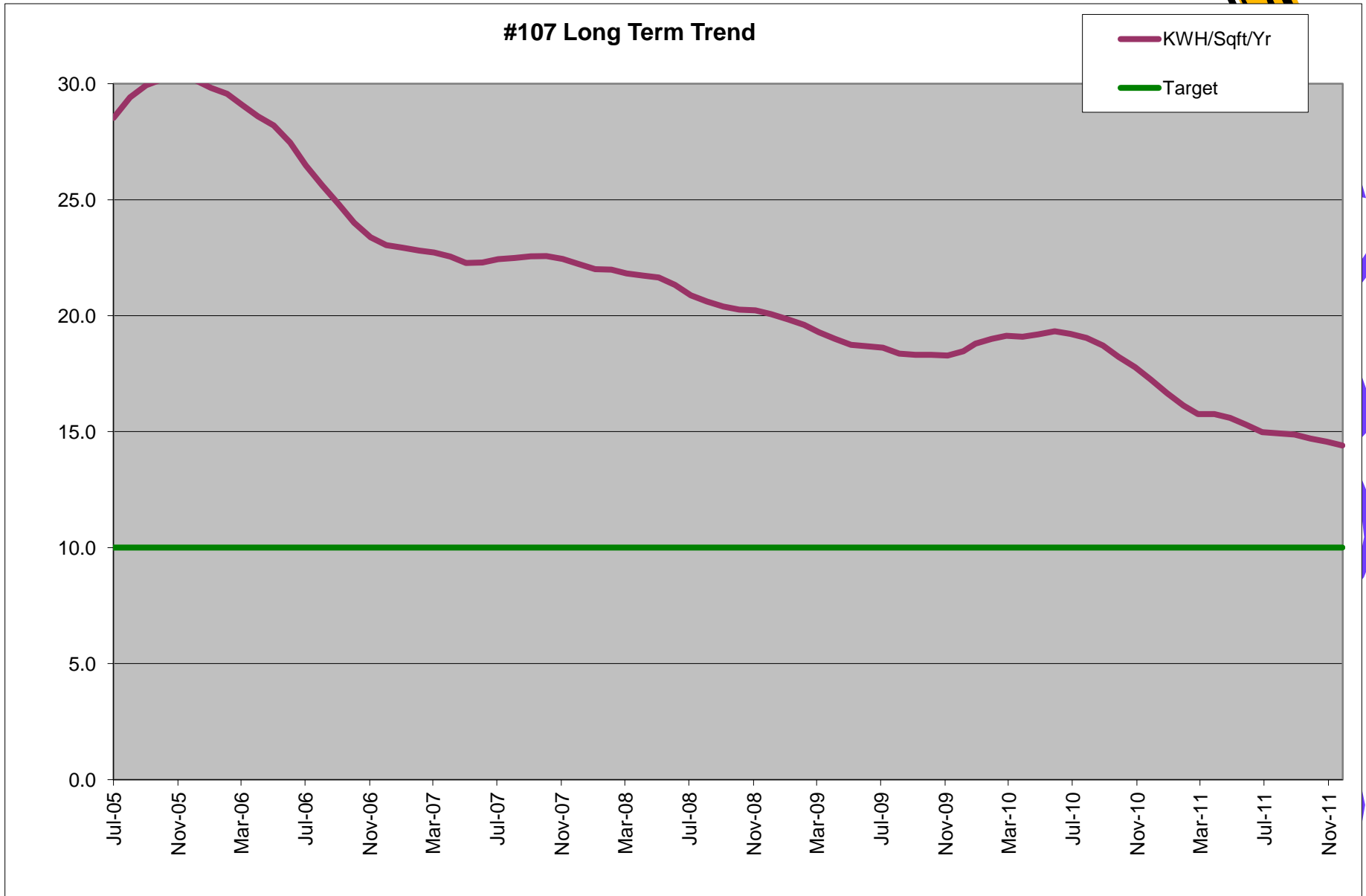
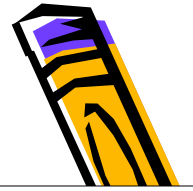
Utility Benchmarking



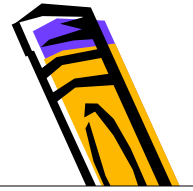
DASOTA #107



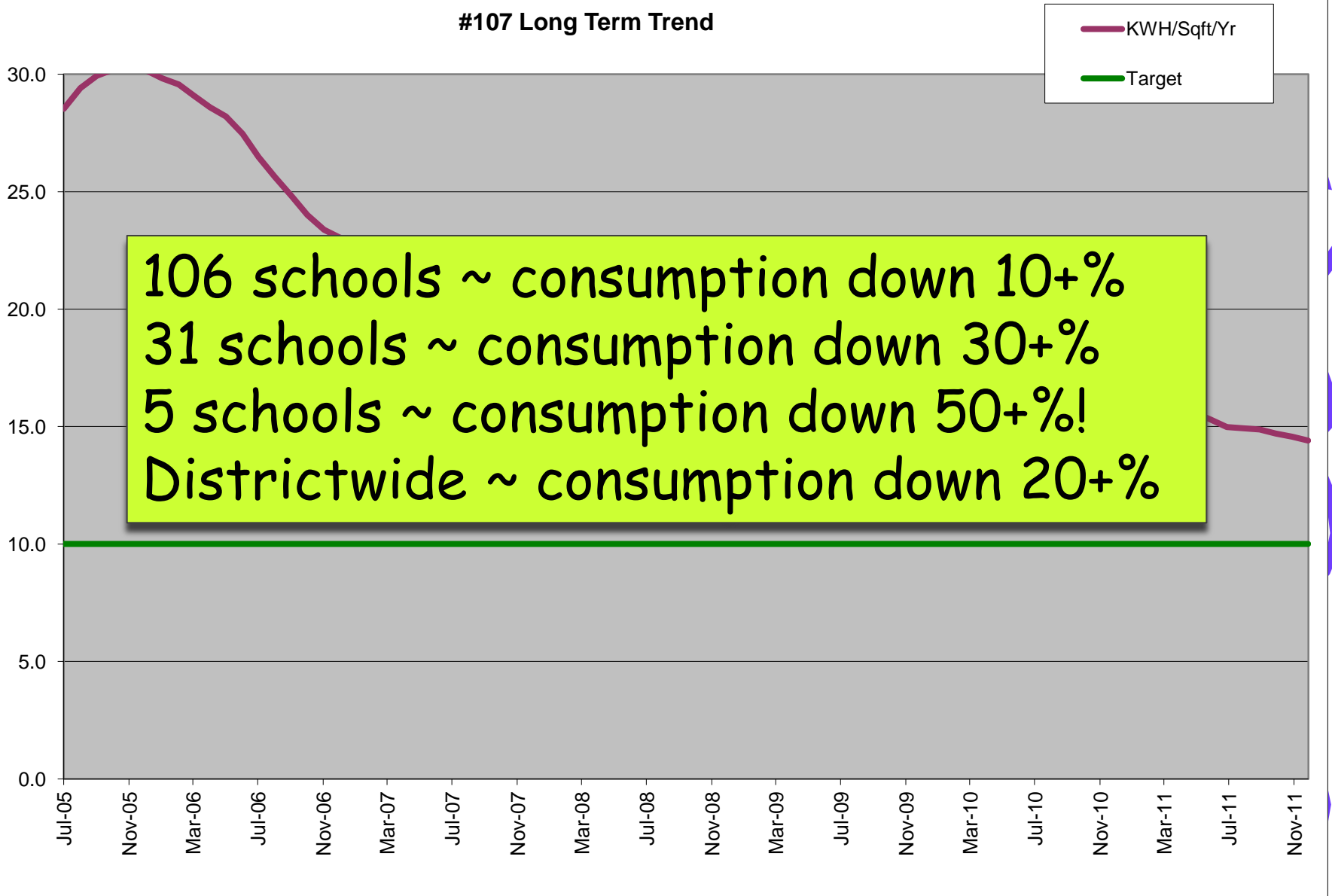
Utility Benchmarking



Utility Benchmarking

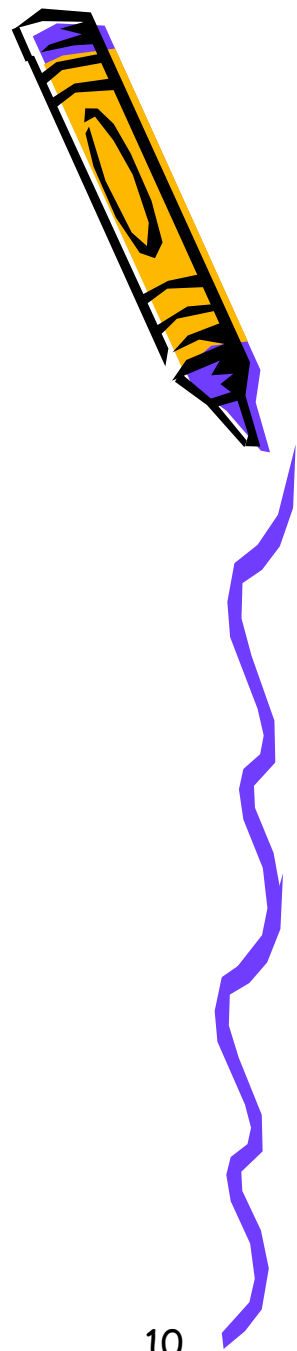


#107 Long Term Trend

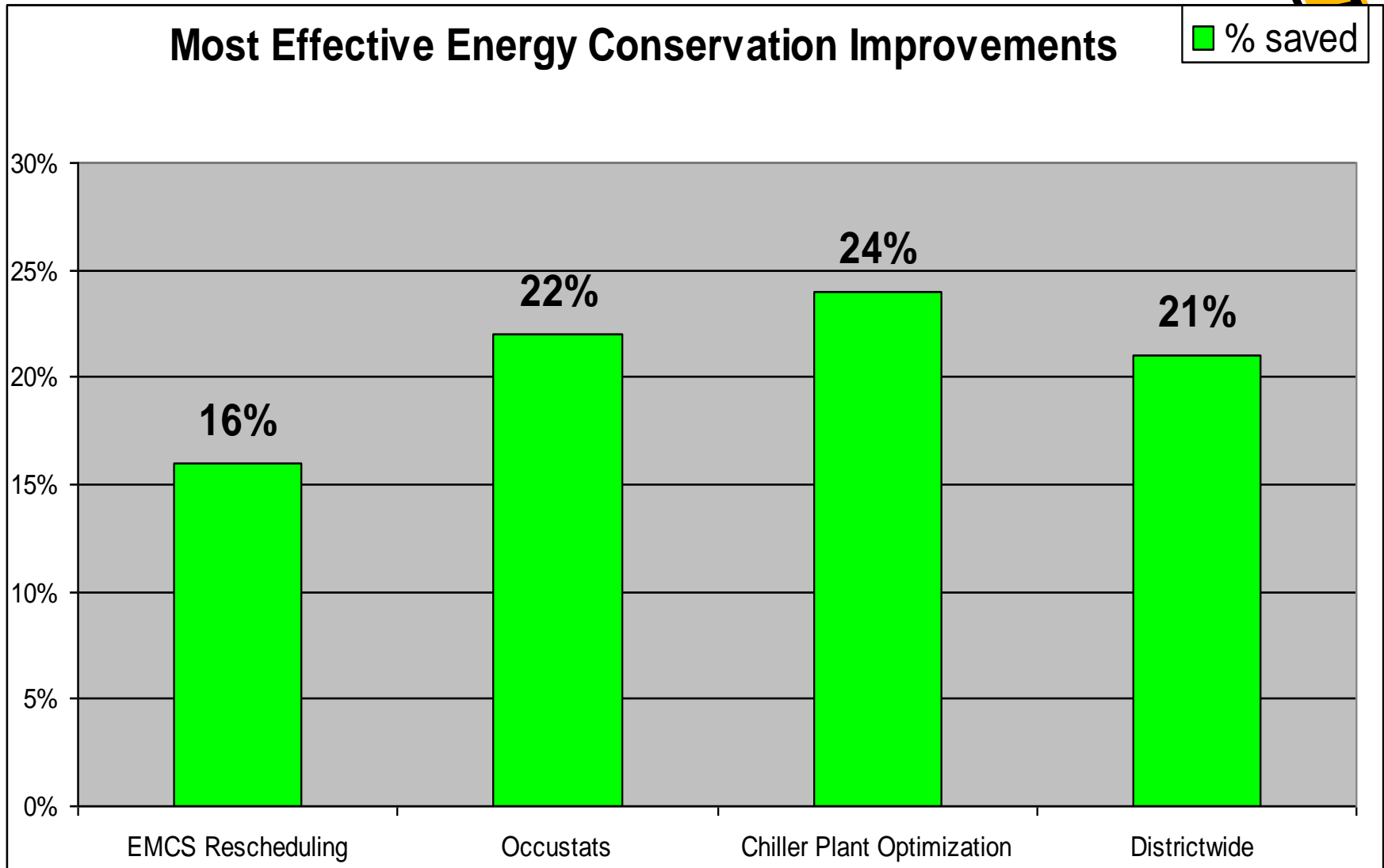
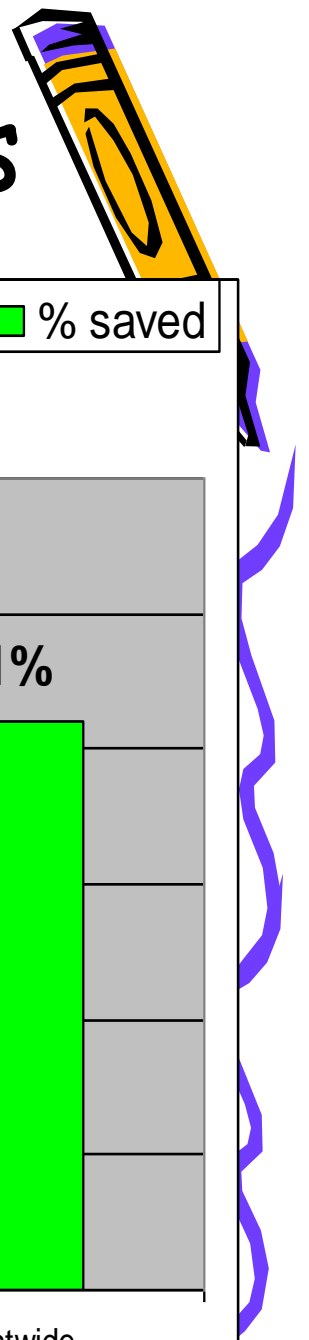


Greening DCPS

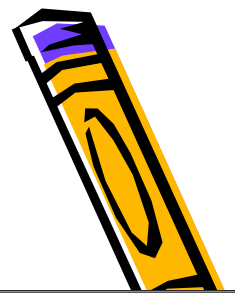
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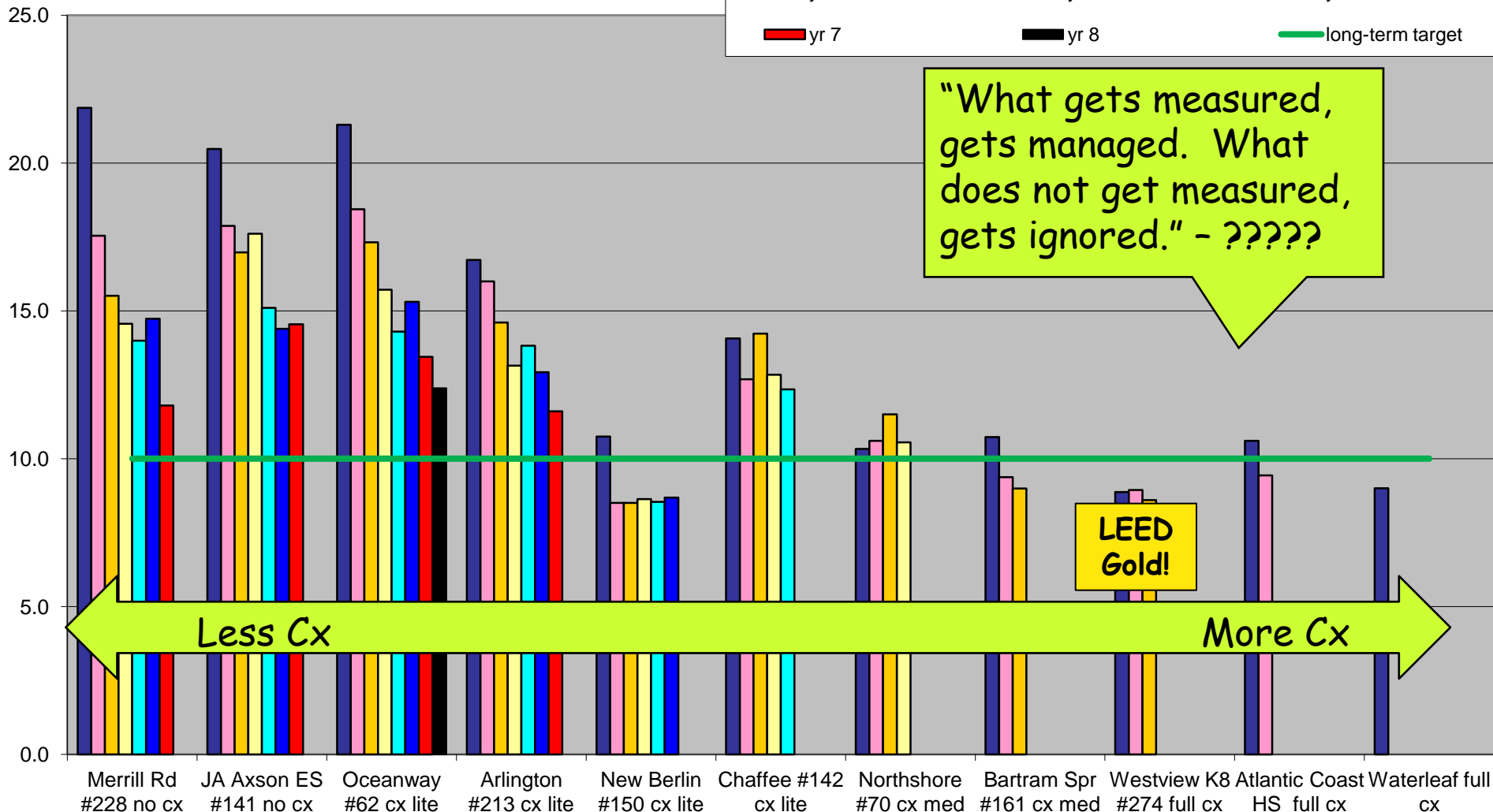
Conservation Improvements



Conservation Improvements - Commissioning New Schools



New Schools Energy Consumption/Sqft Comparison

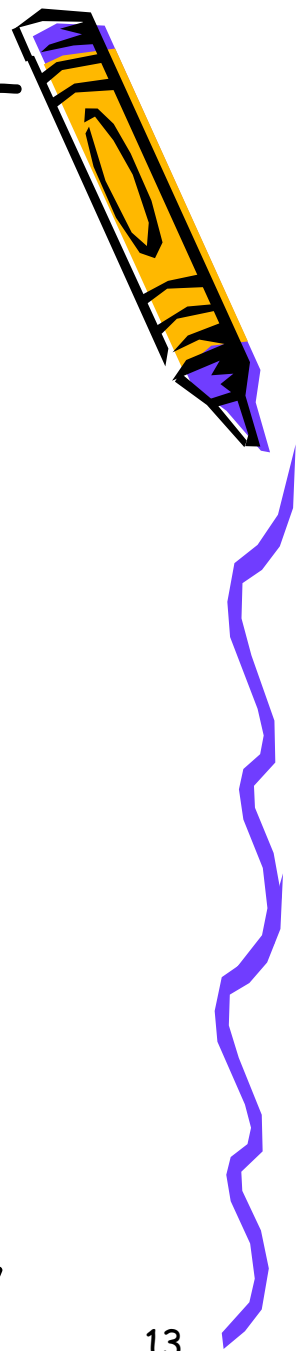


"What gets measured, gets managed. What does not get measured, gets ignored." - ?????

LEED Gold!

Less Cx ← → More Cx

Conservation Improvements -

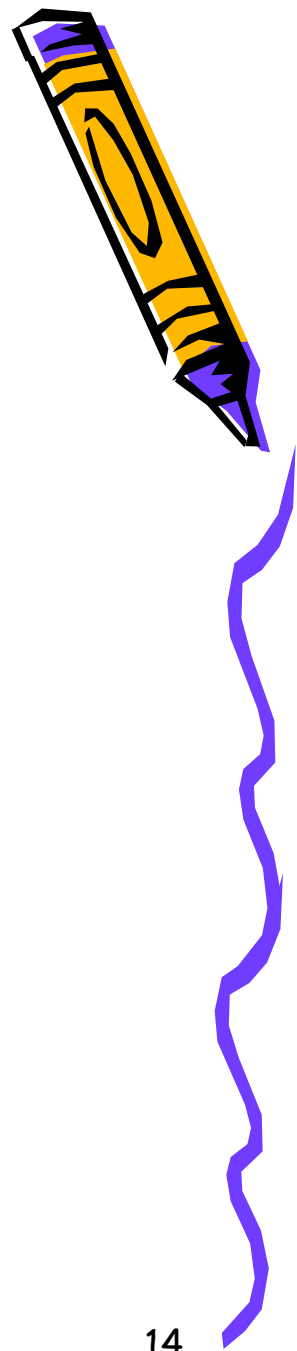


Funding

- Energy Conservation Block Grant
 - 75 schools ~ Lighting retrofits & controls
- Revenue Anticipation Note
 - 110+ schools ~ Energy & water conservation
- JEA rebates
- SunSmart Schools Grant
 - 4 schools ~ 10 KW Solar panels
- Slow Foods Grants
 - 4 schools ~ school gardens
- Various grants, contests, volunteers, donations, etc.

Greening DCPS

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Awareness/Education

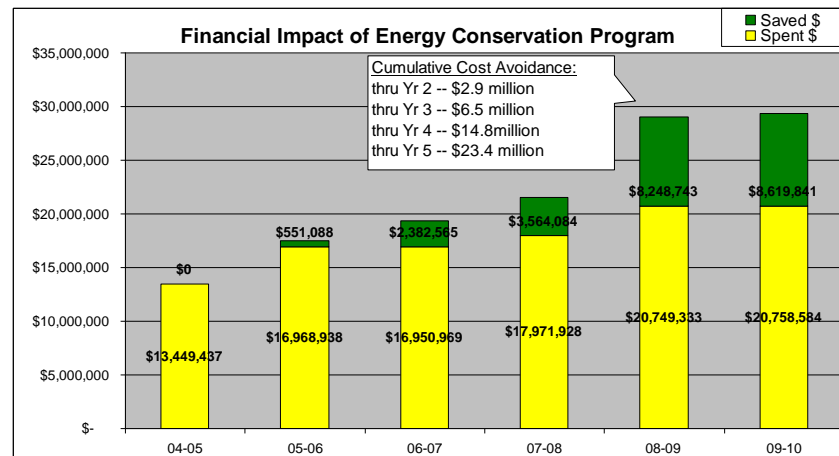


- Culture change
- Awareness/Behavior component became...
Green Champions!
- **Green Champions** are volunteers who promote sustainability in addition to their regular duties
- Public attention to sustainability
 - Speak at BOMA, ASHRAE, Navy Energy Forum, Rotary, USGBC, etc.
 - Articles in Jacksonville Business Journal, Florida Times-Union, Green Business Quarterly
 - WJCT School Matters
 - Sustainability Symposiums, Webinars, Advisory Committees, Competitions

Awareness/ Education

Green Champion objectives:

1. Reduce operating costs by eliminating waste
2. Conserve natural resources
3. Incorporate environmental stewardship into curriculum



Duval Schools GREEN CHAMPION

"Creating Green Schools THIS GENERATION!"

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- GCA
- JEA
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- CED
- Matern Engineering
- AEC Electrical Contractors
- TLC Engineering
- The Omega Group Engineers
- Quality Electrical Service
- RS&H Consulting Engineers

Green

- Allstate Construction
- AJAX Building Corporation
- Performance Engineering Group
- Breaking Ground Contracting
- Powell Design Group
- Haddad Engineering
- John Searcy & Associates Engineering
- McVeigh & Mangum Engineering

Green Champions Development

- Jan 2010, asked for environmentally friendly volunteers at each school to "champion" sustainability
- Immediately had 100 volunteers
- Conducted kick-off meeting to discuss goals
- May 2010, conducted Green Champion of the Year competition
 - ~ winner Sandalwood HS!
- Participants and winners received small gift bag of sustainability themed items.



Green Champions Development

2010 - 2011 School Year

- Kick-off meeting to discuss new and improved program
- Share activities with peers, grant opportunities
- Utility benchmarking
- GCA Green Bucket competitions
- JEA Backpacks for energy audits
- Breaking Ground LEED Platinum office



Green Champions Development

2010 - 2011 School Year (continued)

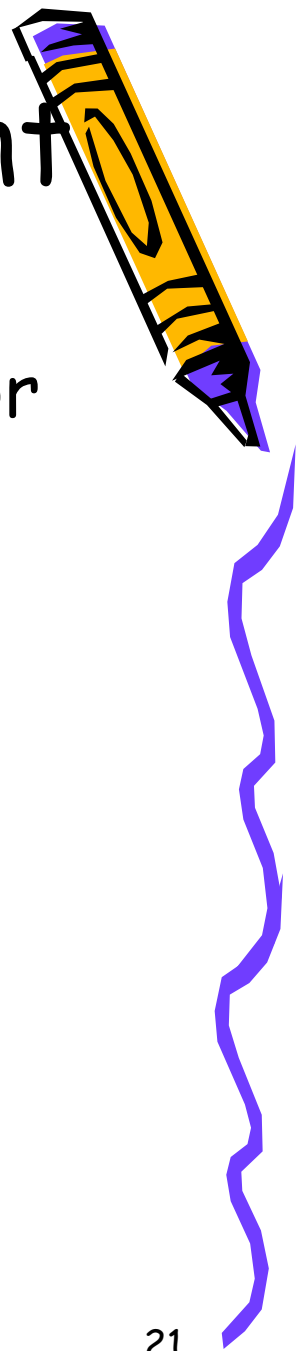
- EECBG funds for sustainability start-up kits
- Applied for grants and competitions to receive funding, exposure, recognition
- T. Jefferson ES won national recycling contest and \$5,000!
- JEA donated 400 trees
- GC for a Day ~ Energy audit by JU students
- Florida Green Schools Awards Finalist
- Keep Jacksonville Beautiful winner
- USGBC "Move the Needle" award



Green Champions Development

2010 - 2011 School Year (continued)

- Participants received gifts & gift cards for GC, \$\$\$ for schools, Board recognition
- Green Champion of the Year competition
 - ~ winner J.E. Ford K8!
- Winner ~ school landscape makeover (GCA and US Navy) & bragging rights!

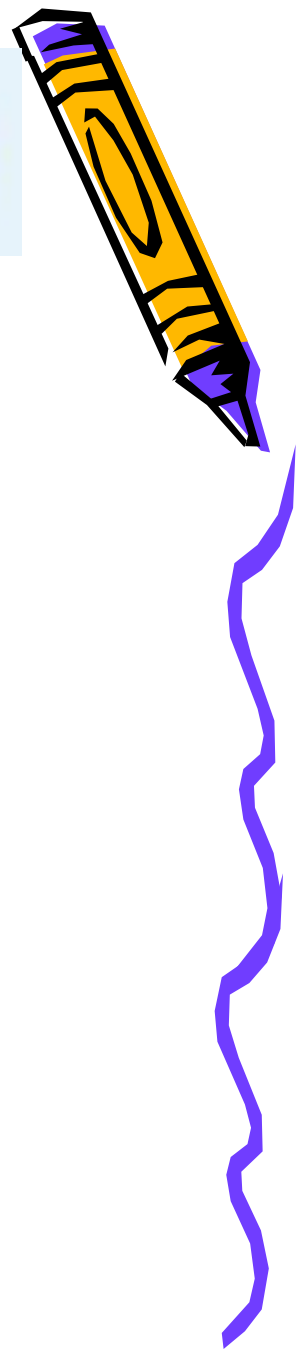


2011 Green Champion of the Year Winner - John E. Ford



Florida Green School Awards

- DCPS District -- Top 3!
- Participants in every category
 - Students
 - Teachers
 - Class
 - School
 - District



Green Champions Development

2011 - 2012 School Year

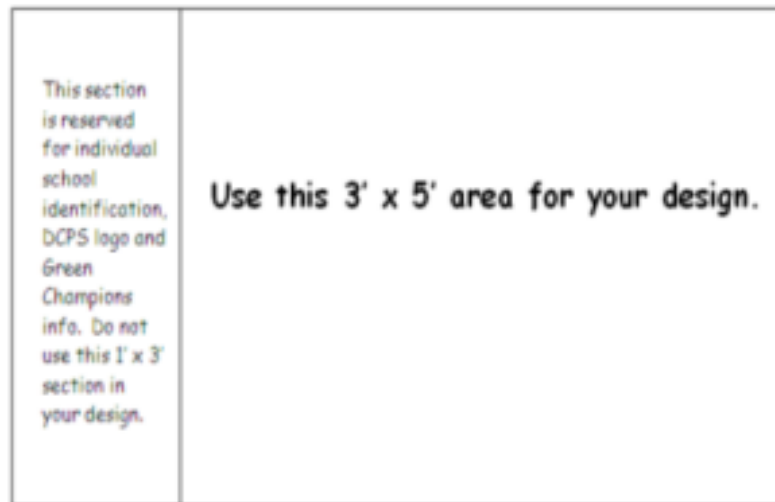
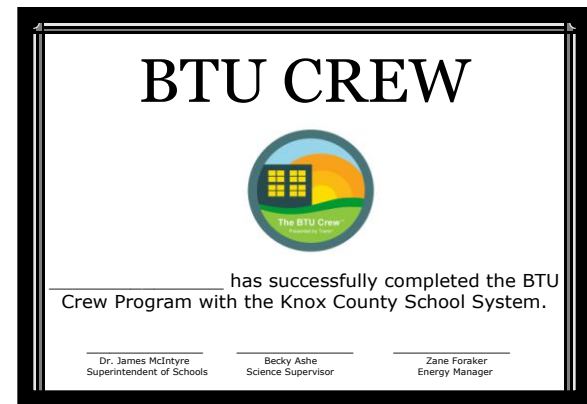
- Kick-off meeting to discuss new and improved program
- Same activities as 2010-2011 & more ...
 - Sustainability start-up kits
 - Green Team jerseys
 - Green Team utility surveys
 - Energy monitoring devices
 - GCA Energy/Water audits
 - GCA Newsletter



Green Champions Development

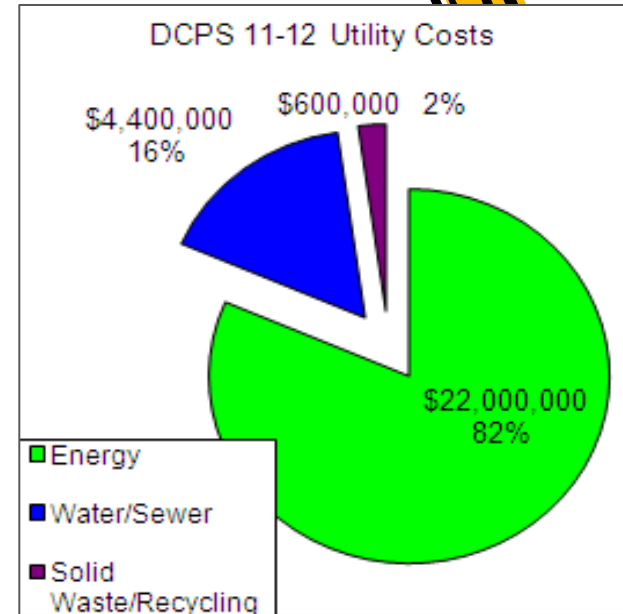
2011 - 2012 School Year (continued)

- Same activities as 2010-2011 & more ...
 - Trane BTU Crew
 - Rain Barrel initiative
 - Green Map Jacksonville
 - Green School banner contest



Open Discussion

- What can we do to help you promote sustainability?
- Green Champion of the Year competition
 - Intend to submit application?
 - Ideas for awards?
- Guest speakers?
- Activities to engage folks, ideas for the group?
- How did your school use award funds?
- What do you think of Green Champions t-shirts?
- What do you think of Green Team jerseys?
- Effective program can save DCPS \$3M/yr in utility costs!



GCA Green Champion Activities



Ms. Anton from Englewood Elementary



Susan Carew - Energy Audit



Rain Barrel Project



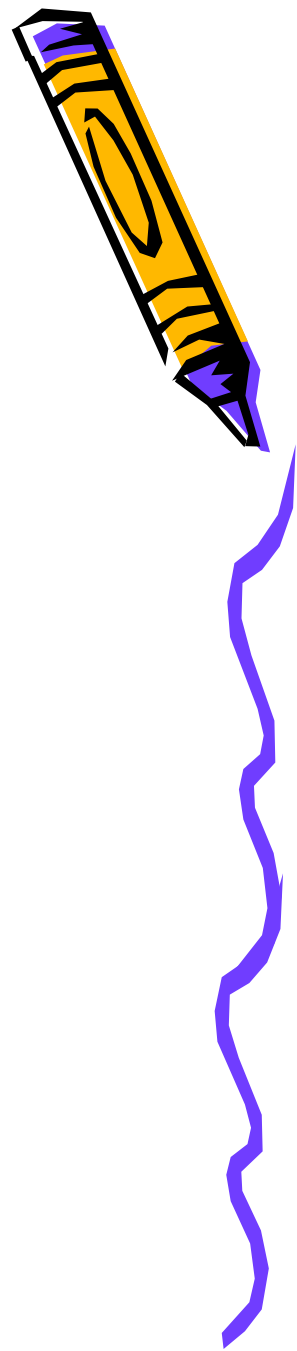
Windy Hill Elementary School



Thomas Jefferson Elementary School

Benchmarking Utilities

- Green = Top 1/3
- Yellow = Middle 1/3
- Red = Bottom 1/3
- ??????? = missing data
- Find your school in table
- Note your colors for each utility
- Data is not perfect
- Directs us to potential savings



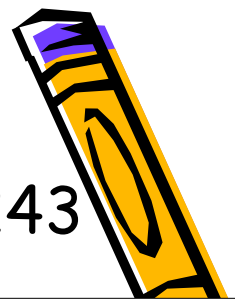
as of 2-2011 for 5-2011 meet	T\$/FTE/YR	R\$/FTE/YR	Energy cons/sqft/yr	W/S cons/fte/yr	as of 2-2011 for 5-2011 meet	T\$/FTE/YR	R\$/FTE/YR	Energy cons/sqft/yr	W/S cons/fte/yr
3006 - Rutherford	???????	???????	12.3	159	3080 - San Pablo ES	\$20.74	\$0.33	7.6	79
3012 - West Riverside ES	\$5.76	\$1.15	12.4	201	3082 - Love Grove ES	\$4.91	\$0.86	9.8	358
3014 - Grand Park	\$10.93	\$1.92	19.5	11	3083 - San Jose ES	\$4.23	\$0.49	10.6	260
3015 - Brentwood ES	\$6.09	\$1.00	11.1	535	3084 - Bayview ES	\$7.52	\$1.06	10.6	303
3016 - Ortega ES	\$14.52	\$3.31	11.4	271	3085 - Lake Lucina ES	\$8.39	\$0.98	10.0	193
3018 - Central Riverside ES	\$4.15	\$1.07	11.2	198	3086 - Terry Parker HS	\$5.84	\$0.43	12.0	135
3019 - Ruth N. Upson ES	\$5.12	\$1.03	9.9	225	3087 - Englewood ES	\$5.43	\$0.96	12.1	?????????
3020 - Fishweir ES	\$4.31	\$1.34	11.6	450	3088 - John C. Stockton ES	\$4.14	\$0.73	10.1	199
3021 - Annie R. Morgan ES	\$5.74	\$1.01	10.3	283	3089 - Woodland Acres ES	\$12.90	\$0.88	?????????	199
3025 - Kirby-Smith MS	\$10.02	\$0.84	9.2	123	3090 - Englewood HS	\$4.17	\$0.36	11.6	204
3030 - Loretto ES	\$3.18	\$0.59	12.1	206	3091 - Sallye B. Mathis ES	\$8.68	\$1.01	10.3	941
3031 - Landon MS	\$3.46	\$0.95	12.0	178	3092 - Paxon MS	\$9.20	\$0.94	9.4	167
3032 - Marine Science	\$22.20	?????????	14.9	?????????	3093 - Pinedale ES	\$14.96	\$1.68	11.0	267
3033 - Robert E. Lee HS	\$8.95	\$0.39	10.7	297	3094 - Windy Hill ES	\$4.57	\$1.13	9.1	362
3035 - Andrew Jackson HS	\$9.68	\$1.42	14.7	133	3095 - RH Pearson ES	\$10.33	\$2.90	8.8	707
3037 - Henry F. Kite ES	\$5.71	\$0.96	12.2	263	3096 - Jean Ribault HS	\$11.25	\$0.68	11.1	979
3038 - Baldwin MHS	?????????	\$0.50	15.7	?????????	3097 - Cedar Hills ES	\$5.89	\$1.09	8.9	190
3045 - Dinsmore ES	\$3.40	\$1.40	11.8	121	3098 - Timucuan ES	\$4.12	\$1.01	10.2	216
3046 - Arlington ES	\$7.16	\$1.43	12.1	153	3099 - Highlands ES	\$6.61	\$1.63	8.9	95
3048 - Thomas Jefferson ES	\$1.38	\$2.15	11.2	247	3106 - Long Branch ES	\$12.69	\$1.96	12.7	?????????
3051 - Whitehouse ES	\$5.42	\$1.33	12.5	179	3107 - DASOTA	\$5.03	\$0.63	15.6	484
3059 - Garden City ES	\$5.31	\$0.62	?????????	295	3116 - Sadie T. Tillis ES	\$4.70	\$1.45	9.3	245
3062 - Oceanway MS	\$4.85	\$0.77	13.2	95	3124 - Saint Clair Evans ES	\$5.84	\$1.44	13.5	718
3063 - Duncan Fletcher MS	\$17.69	\$0.49	11.7	560	3128 - Susie E. Tolbert ES	\$5.14	\$1.06	10.9	197
3064 - HS Glen ES	\$6.57	\$0.92	10.6	1971	3141 - JA Axson ES	\$3.98	\$3.59	13.6	170
3065 - Atlantic Beach ES	\$3.73	\$0.75	17.2	?????????	3142 - Chaffee Trails ES	\$8.17	\$1.02	13.6	106
3066 - Alfred duPont MS	\$6.73	\$1.02	11.3	210	3143 - West Jax ES	\$11.45	\$1.46	14.6	249
3068 - Venetia ES	\$4.55	\$1.82	10.3	153	3144 - Jax Beach ES	\$15.98	?????????	11.6	97
3069 - Lake Shore MS	\$5.01	\$1.25	13.1	649	3145 - Darnell-Cookman MS	\$2.74	\$0.69	12.6	272
3070 - North Shore K8	\$3.83	\$1.32	12.4	261	3146 - Matthew Gilbert MS	\$8.22	\$2.89	13.6	256
3071 - Hendricks Ave ES	\$3.72	\$1.98	13.5	128	3148 - Richard L. Brown ES	\$6.15	\$1.55	10.5	276
3072 - Spring Park ES	\$7.87	\$1.39	10.7	251	3149 - S. P. Livingston ES	\$8.61	\$4.02	9.8	276
3073 - John Love ES	\$11.27	\$1.98	10.3	193	3150 - New Berlin ES	\$2.99	\$0.75	12.2	98
3074 - Lake Forest ES	\$6.63	\$0.84	8.2	413	3152 - James W. Johnson MS	\$6.42	\$0.66	11.5	84
3075 - Paxon HS	\$10.05	\$0.44	15.5	97	3153 - Stanton HS	\$2.05	\$0.42	9.8	123
3076 - Southside Estates ES	\$3.82	\$2.29	10.4	271	3154 - John E. Ford K8	\$7.52	\$0.94	13.7	212
3077 - Hyde Park ES	\$3.98	\$0.80	9.9	200	3155 - Northwestern MS	\$15.72	\$1.61	14.3	185
3078 - Biltmore ES	\$5.87	\$2.35	9.5	375	3158 - George W. Carver ES	\$6.89	\$0.97	9.4	275
3079 - Ramona ES	\$7.64	\$0.89	9.2	248	3159 - Pine Forest ES	\$6.52	\$0.76	11.8	?????????
					3161 - Bartram Springs ES	\$2.34	\$0.41	10.4	162
					3162 - R. V. Daniels ES	\$6.73	\$1.18	12.9	228

Energy Audit Backpacks

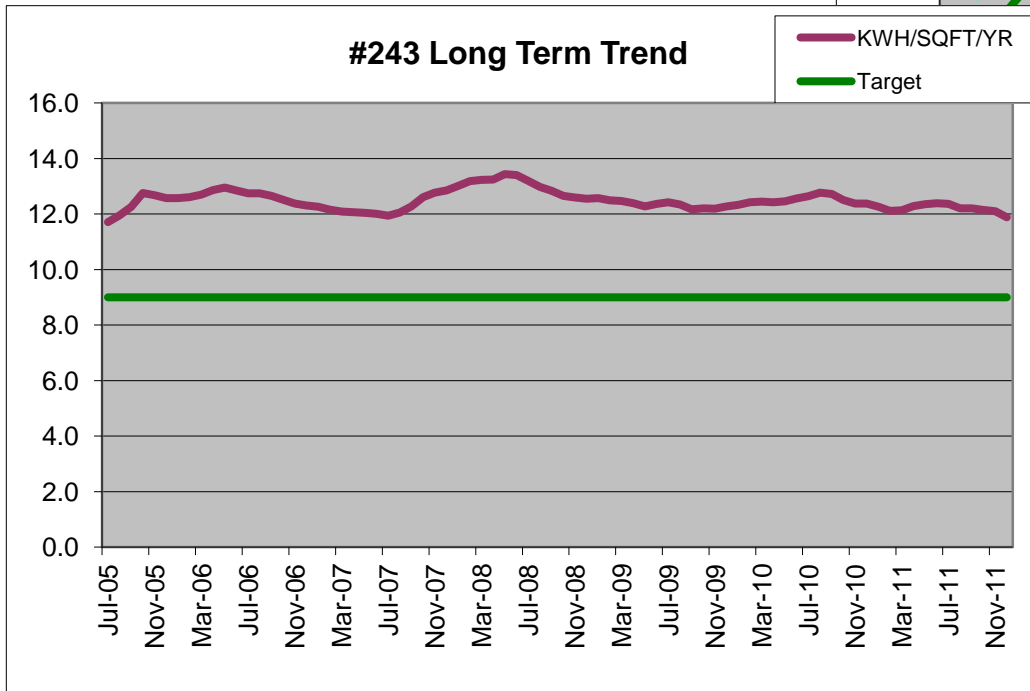
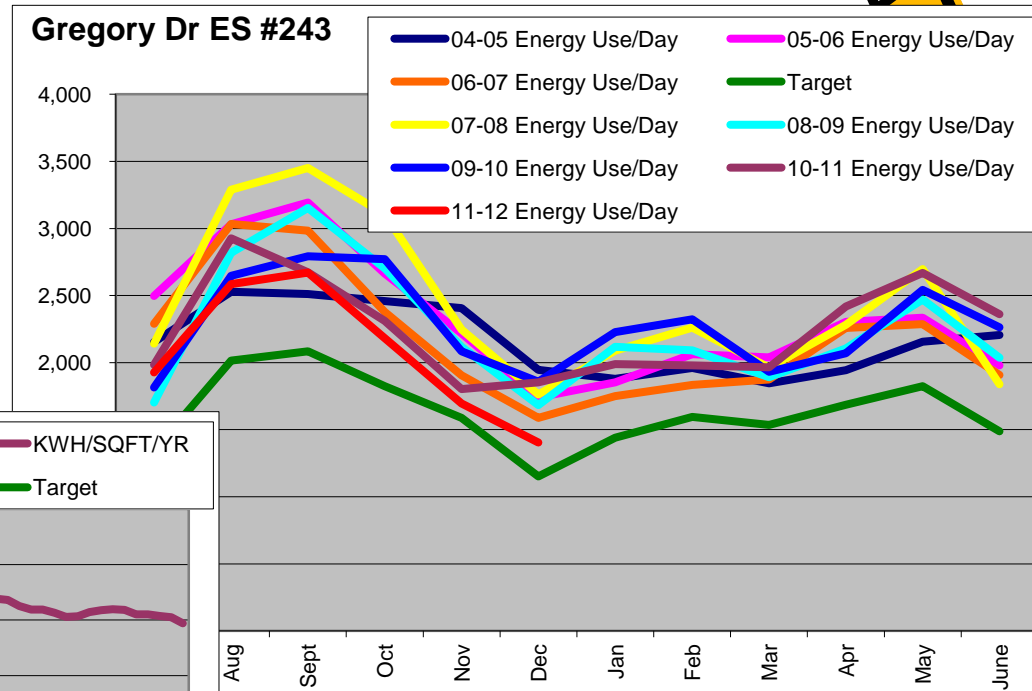
- Donated by JEA
- Tools to conduct energy audits
 - ... and instructions!
- DCPS has 5 total
- Schools can check out backpacks from Central Office



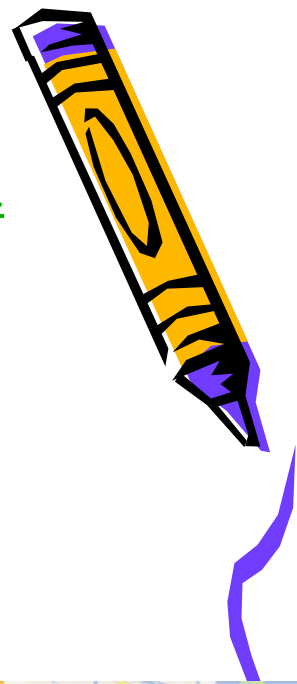
GCFAD Update



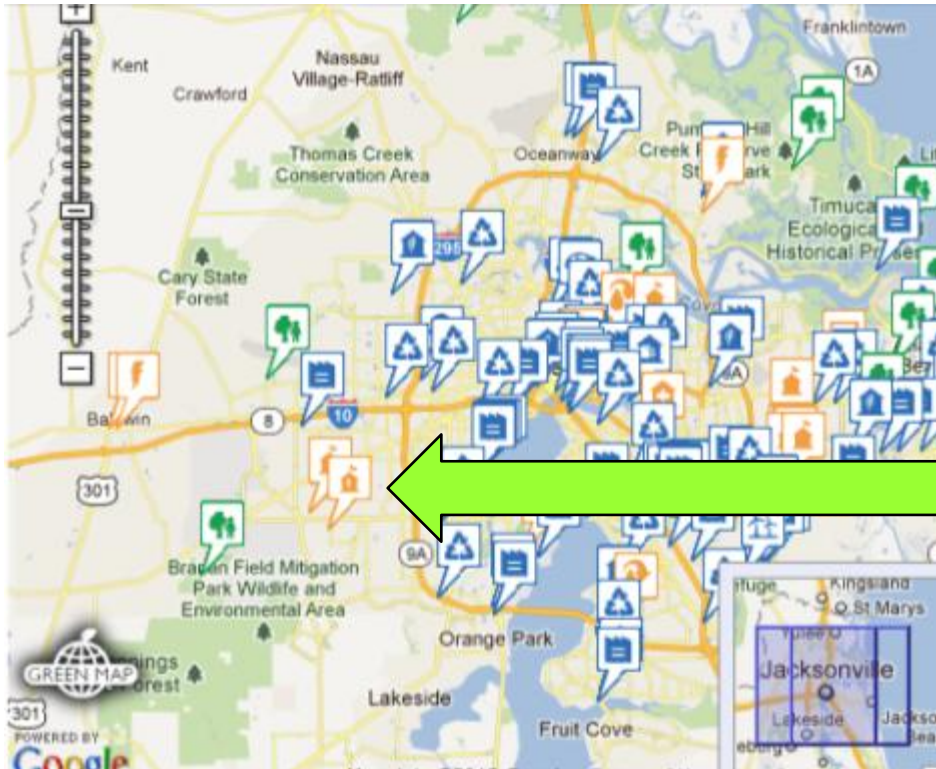
- Energy audit by JU students at Gregory Dr ES #243
- Most recommendations have been implemented
- Lighting retrofit is in progress now
- Results



Green Map Jacksonville



- What is it? <http://www.opengreenmap.org/greenmap/jacksonville>
- How can it be used in the classroom?
- Volunteer Content Coordinators needed
 - Students can earn service hours



Westview K8-LEED Gold, Green Champion



Overview

Comments

Connections

Multimedia

Impacts

Some of the features are:

- 25 KW photovoltaic array
- Very efficient HVAC and lighting systems and building insulation – 27.5% reduction in energy consumption compared to energy code
- Excellent filtration for improved air quality – MERV-13 filters and ion generation filtration (kills bacteria and viruses)
- Reduce water consumption – 30% reduction in water usage
- On-site energy generation – solar power helps power building
- Over 80% of the construction waste was recycled and avoided being put into landfills
- 40% of materials were bought from local suppliers to improve local economy and reduce impact of transportation of goods
- 20% of material used were made from recycled materials
- Sustainable courses are incorporated into the curriculum – the building is now being used as site and teachers
- Site was developed to minimize impact to local ecological life
- Students and teachers have direct views to outside – improves comfort and happiness of occupants
- Daylight harvesting – lighting system uses daylight to light classrooms when appropriate and
- Low VOC (Volatile Organic Compounds) used in building materials – improves indoor air quality
- studies show LEED schools decrease absenteeism/sick days and increase test scores by 15%

Trane BTU Crew™



During six lessons, students learn about energy, energy efficiency, careers and ways to take action.

1. **Energy 101:** Energy, energy transformations and energy usage.
2. **I Spy...Energy Efficiency:** What energy efficiency means and how to be energy efficient through hands-on experiments.
3. **Careers: Saving BTUs:** What different types of engineers do, specifically concerning energy usage.
4. **Energy Audit:** Conduct a preliminary energy audit of the school using Trane's Web-based tool to view real results.
5. **What's Our Energy Score:** Analyze the results of the energy audit.
6. **Expand the BTU Crew:** Take action by presenting findings or writing a letter to a local legislator.

Green Ribbon Schools

Department of Education Starts Award for 'Green' Schools

APRIL 26, 2011, Contact: Press Office, (202) 401-1576, press@ed.gov

U.S. DOE announced Green Ribbon Schools to recognize schools that are creating healthy, sustainable learning environments and teaching environmental literacy. Program will be run by Education Dept. with support of White House Council on Environmental Quality and U.S. EPA.

"Preparing our children to be good environmental citizens is some of the most important work any of us can do," U.S. Secretary of Education Arne Duncan said. "It's work that will serve future generations and quite literally sustain our world."



Garden Grants



s l o w f o o d f i r s t c o a s t

Supporting good clean and fair food

Mission

Slow Food USA seeks to create dramatic and lasting change in the food system by reconnecting Americans with the people, traditions, plants, animals, fertile soils and waters that produce our food. We seek to inspire a transformation in food policy, production practices and market forces so that they ensure equity, sustainability and pleasure in the food we eat.

Good:

For Slow Food, the idea of good means enjoying delicious food created with care from healthy plants and animals. The pleasures of good food can also help to build community and celebrate culture and regional diversity.

Clean:

When we talk about clean food, we are talking about nutritious food that is as good for the planet as it is for our bodies. It is grown and harvested with methods that have a positive impact on our local ecosystems and promotes biodiversity.

Fair:

We believe that food is a universal right. Food that is fair should be accessible to all, regardless of income, and produced by people who are treated with dignity and justly compensated.

www.slowfoodfirstcoast.com





DPS Green Champions
grew sustainable kids ...
and wildflowers!



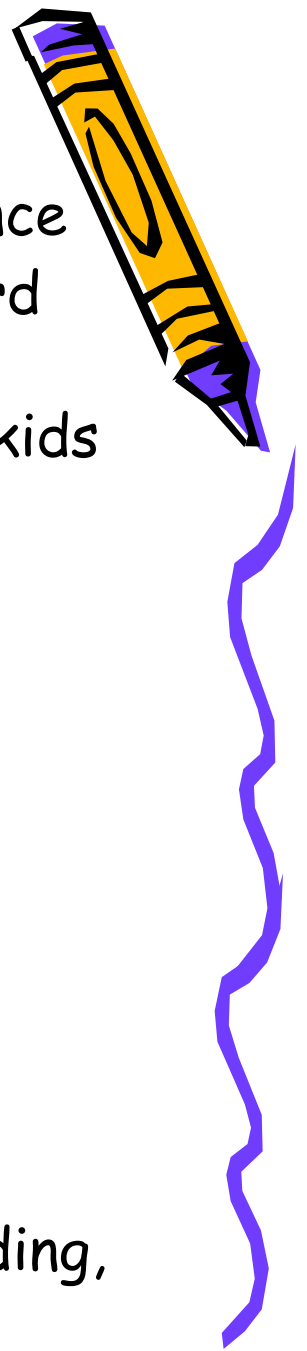
Resources



- www.JEA.com ~Green Alien, Rebirth Earth, Website Library
- Paper recycling ~ Southland Waste 904-732-3226, www.recycleitjacksonville.com/kids; www.PaperRetriever.com
- Trees ~ Greenscape, Anna Dooley 904-398-5757; volunteers plant, coordinate placement with Wayne Atwood's staff!
- Green school activities~ www.johnsoncontrols.com/givefivegreen
- www.trane.com/K12/engaging-students.html
- US Green Buildings Council ~ www.buildgreenschools.org, www.greeneducationfoundation.org; Center For Green Schools
- www.slowfoodfirstcoast.com
- Organic/hydroponic gardening ~ Jason Hunnicutt 904-398-8012 ~ www.urbanorganicsjax.com
- <http://greenenergytv.com/category.php>
- USGBC Sustainability Resource Center mobile field trip ~ trailer outfitted with sustainability demonstrations, experiments, etc.
- www.opengreenmap.org/greenmap/jacksonville
- www2.ed.gov/programs/green-ribbon-schools
- www.breakinggroundeducation.com; www.breakinggroundgreenroof.com

Green Champion Activities

- Energy/water patrol; report deficiencies to Maintenance
- Make note pads out of gently-used paper and cardboard food boxes; provide to teachers/students
- Video productions, Powerpoint PPTs, plays by kids for kids
- Fundraiser to Adopt-A-Manatee
- Use of free resources from partners, guest speakers, and/or on-line; field trips to sustainable sites
- Collect AC system condensate to water landscaping
- Use homemade solar panels to cook at school carnival
- Reuse and exchange gently-used books
- Wear Green Day to celebrate the school "going green"
- Posters signed by students committing to recycle, be sustainable
- Green tips in daily/weekly announcements
- Poster, T-shirt, environmental trivia, bird-feeder building, photography contests



Green Champion Activities



- Plant trees, shrubs, flower gardens, vegetable gardens, butterfly gardens; (materials donated by local businesses)
- Campus clean up; leaves used for mulch or compost; art contests using collected materials
- Adopt-A-Road in front of school, clean up Little Jetties, Castaway Island, Dutton Island, Ed Austin Park
- Use shredded paper to make paper, line pet store cages
- Collect, clean, repair items for sale at school thrift store
- Non-meat/cheese leftovers placed at base of trees to decompose; nutrients for plants and reduces dumpster load
- Webpage showing upcoming events, contests, Green Tip Of The Week
- Hydroponic gardens, rain barrels
- Collect greeting cards; send to troops, nursing homes, etc.
- Melt used crayons to make chunky crayons for disabled students