Tyler, Daniel, Jana

Lighting Analysis

Our group was responsible for examining the amount of light that the high school and office uses per 180 days. The high school contains 7 rooms, two of the rooms are for science, one is a computer lab and the other rooms are used as normal classrooms. The office contains six rooms that are used for secretarial work.

First of all we counted the number of fixtures, the number of lamps per fixture and wrote the wattage, the type, and the type of ballast of each lamp and put it in a table. After that we went to each room, used a light meter and measured the foot-candles per room. Then we went through, counted the exit signs and determined the type of the exit sign. In the end we put all the data into a spreadsheet.

In the next step we figured out how much hours per 180 days the lights run. Then we converted the watts into kilowatts by taking watts and dividing it by 1000. After that we multiplied kilowatts by hours run per 180 days and that gave us the kilowatt hours per 180 days. Then we took the kilowatts per 180 days and multiplied by a cost per kilowatt-hours and figured out the price per 180 days per bulb. In the end we multiplied the price per 180 days per bulb by the number of bulbs in each room. That gave us the cost for lighting for each room in the high school and the Office.

Then we took a closer look at the foot-candles in each room and compared them to a chart that gave you a recommended measure of lighting in foot-candles. In our analysis we discovered that most the rooms were overlit and not all lighting is needed. When we figured that out we thought about some ways to save lighting and cut down the bill. One of them is, that you could add more light switches to regulate the lighting better and use it more effective. You could also take some lights out, because some rooms are so overlit, that you don't need all lights and don't have the possibility to switch them on. If you switch the light off, when you leave the room or the sun is lighten the room that would save money, too. A good recommendation for teachers, who work after school in their room, is, that they could buy a little lamp for their desk, so that the big lighting for the whole classroom can be switched off. It would also be more effective and it would save money, if all lighting would be switched into T-8 lights.

Tyler, Daniel, Jana 11/25/2008

Appliances Analysis

Our group was responsible for examining all appliances in the high school and the office. We went through every room in high school and office and looked for appliances. When we found an appliance we looked for a sticker with information or we used a wattage meter, which determined the wattage, volts and amps of the appliance. We also had to look for a sticker that said if the appliance is UL tested. He The UL testing services test appliances for the safety of the costumers. After we wrote all the information down in a chart, we started to convert the watts in kilowatts by dividing the watts by 1000. Then we figured out how long the appliances run in hours per 180 days. In the end we multiplied the hours per 180 days by the kilowatt-hours and that gave us the total cost per appliance per 180 days.

The result of our appliances analysis isn't too bad. The school doesn't spend too much money for appliances, but they still can save money. The school spends the most money on the big printer and the computers. To save money and cut the bill, you could shut down the appliances times such as the computers which can be on all day. The last class that is in use of the computers could shut them off for the night so they would not use up energy from the end of the day until the next day or even the weekend. Also the TVs and DVD players could be unplugged and plugged in only when needed because they take larger amount of energy and are used seldom.

Highschool and Office Lighting Data

Room Number	Wattage per bulb	Kilowatt	hours run per 180 days	kilowatthour per 180 days	Cost\KWH	$\180 days per bulb	Bulbs\room	Total cost per 180 days
156	25	0.025	1080	27	0.15	4.05	34	137.7
Hall	34	0.034	2880	97.92	0.15	14.69	18	264.42
Trophy Case	15	0.015	2880	43.2	0.15	6.48	3	19.44
146	34	0.034	1080	36.72	0.15	5.51	4	22.04
145	34	0.034	1080	36.72	0.15	5.51	4	22.04
163	34	0.034	2880	97.92	0.15	14.09	18	253.62
169	32	0.032	1620	51.84	0.15	7.78	12	93.36
164 A	60	0.06	180	10.8	0.15	1.62	1	1.62
170 A	32	0.032	1440	46.08	0.15	7.02	6	42.12
170	32	0.032	918	29.38	0.15	4.41	6	26.46
168	32	0.032	1800	57.6	0.15	8.64	12	103.68
161	32	0.032	1980	63.36	0.15	9.5	9	85.5
160	32	0.032	1440	46.08	0.15	6.91	36	248.76
159	32	0.032	1440	46.08	0.15	6.91	6	41.46
166 A \ 166	32	0.032	1530	48.96	0.15	7.34	24	176.16
165	32	0.032	1440	46.08	0.15	6.91	36	248.76
161	32	0.032	1440	46.08	0.15	6.91	36	248.76
164	32	0.032	1386	44.35	0.15	6.65	36	239.4
162	32	0.032	1620	51.84	0.15	7.78	36	280.08
172 \ 173	34	0.034	2880	97.92	0.15	14.69	6	88.14
174	34	0.034	360	12.24	0.15	1.84	2	3.68
							Tyler, Daniel, Jana	

Highschool and Office Lighting Data

Room Number	Room Use	# of fixtures	# of lamps per fixture	Wattage per lamp	Type of lamp	Type of ballast	Foot candles	# of exit signs	Type of exit signs	hours run per 180 days
156	Science	17	2	25	48 inch\T-12	magnetic	67	-	-	1080
Hall	Hall	9	2	34	24 inch\T-12	magnetic	37	1	tube	2880
Trophy Case	Hall	3	1	15	15 inch\T-12	magnetic	95	-	-	2880
146	Restroom	2	2\3	34	4 feet\T-12	magnetic	69	-	-	1080
145	Restroom	2	2\3	34	4 feet\T-12	magnetic	103	-	-	1080
163	Hall	9	2	34	24 inch\T-12	magnetic	25	1	tube	2880
169	Office	4	3	32	32 inch\T-8	magnetic	102	-	-	1620
164 A	Restroom	1	1	60	bulb	magnetic	15	-	-	180
170 A	Office	2	3	32	32 inch\T-8	magnetic	103	-	-	1440
170	Office	2	3	32	32 inch\T-8	magnetic	108	-	-	918
168	Office	4	3	32	32 inch\T-8	magnetic	110	-	-	1800
161	Office	3	3	32	32 inch\T-8	magnetic	76	-	-	1980
160	Science	12	3	32	32 inch\T-8	magnetic	70	-	-	1440
159	Storage	2	3	32	32 inch\T-8	magnetic	94	-	-	1440
166 A \ 166	Special N.	8	3	32	32 inch\T-8	magnetic	48	-	-	1530
165	Math	12	3	32	32 inch\T-8	magnetic	90	-	-	1440
161	Comp. R.	12	3	32	32 inch\T-8	magnetic	52	-	-	1440
164	English	12	3	32	32 inch\T-8	magnetic	40	-	-	1386
162	History	12	3	32	32 inch\T-8	magnetic	90	-	-	1620
172 \ 173	Hall	3	2	34	24 inch\T-12	magnetic	57\35	-	-	2880
174	Restroom	1	2	34	24 inch\T-12	magnetic	46	-	-	360
								Tyler, Daniel, Jana		

Highschool+Office Appliances

Machine or Appliance	Current A	Voltage V	Wattage W	UL tested	Kilowatts	Hours\180 days	Cost\180 days
Projector	5.16	120	615	yes	0.615	108	53.14
T.V	1.65	120	196.8	yes	0.1968	80	1.26
Fridge	1.1	120	132	yes	0.132	4320	45.62
Led Screen	0.2	120	24	yes	0.024	80	0.15
Stapler	0.03	120	3.6	yes	0.0036	2	0.1
Fan	0.3	120	36	yes	0.036	40	0.12
Screen	0.7	120	84	yes	0.084	4320	29.03
Plrinter	4.9	120	588	yes	0.588	4320	203.21
Digital frame	1	120	120	yes	0.12	4320	41.47
Stapler	3	120	360	yes	0.36	2	0.06
Computer	3	120	360	yes	0.36	4320	124.42
Screen	6.5	120	780	yes	0.78	4320	269.57
Calculator	0.135	120	16.2	yes	0.0162	107	0.14
Printer	12	120	1440	yes	1.44	4320	497.66
Shredder	1.76	120	211.2	yes	0.2112	10	0.17
Pencil sherper	1.8	120	216	yes	0.216	20	0.35
Computer	0.37	120	44.4	yes	0.0444	4320	15.34
T.V	1.4	120	168	yes	0.168	108	1.45
Fish tank	0.12	120	144	yes	0.144	4320	49.77
Heat lamp	2.02	120	242.4	yes	0.2424	26	0.5
Computer	1.5	120	180	yes	0.18	4320	62.21
T.V	1.8	120	216	yes	0.216	108	1.87
Pencil sherper	1.4	120	168	yes	0.168	26	0.35
Labtopx33	0.49	120	58.8	yes	0.0588	360	55.77
Air port	0.07	120	8.4	yes	0.0084	4320	2.9
DVD player	0.1	120	12	yes	0.012	50	0.1
VCR	0.07	120	8.4	yes	0.0084	30	0.1
T.V	1.64	120	196.8	yes	0.1968	108	1.7
T.V	1.64	120	196.8	yes	0.1968	108	1.7
Pencil sherper	1.76	120	211.2	yes	0.2112	4320	72.99
Computerx20	1.8	120	216	yes	0.216	4320	1493
Computer	2.2	120	264	yes	0.264	4320	91.23
Scanner x 2	0.7	120	84	yes	0.084	108	1.45
T.V	1.64	120	196.8	yes	0.1968	108	1.7
Pencil sherper	1.8	120	216	yes	0.216	26	0.5
						Tyler, Daniel, Jana	

David, Linda and Cat 12-1-08

Lighting Audit Essay

For this project we had to look at the lighting in certain wings in the school and see what kind of lighting that is being used and see if we can make recommendations for the school for cheaper ways to light the school. We also had to look at the lighting and see if the lights were using a magnetic ballast or if the were using electronic ballast. The rooms that we have to look at were all the rooms in the Special Education rooms and hallway, and we also had the Library.

Starting with the library, the lighting in the library was rather new and really didn't use much energy to use. The library has about 13 light fixtures with 3 light bulbs apiece, and the offices in the library both had 2 light fixtures with 3 light bulbs in each. So in total the library uses 17 light fixtures and a total of 51 light bulbs in the library which I would think is quite a lot for a place that is not all that large.

The special education wing had a total of 5 rooms. The rooms included the teacher's lounge, Ed tech room, the ATM room, and the special education room, and finally the hallway to the rooms. The teacher's lounge had a total of 5 light fixtures with 2 lights apiece, with the little bathroom in the lounge having a light fixture with one light bulb in it. The Ed tech room had a total of 6 light fixtures with 2 light bulbs per fixture. The ATM room had a total of 10 light fixtures with 3 bulbs per fixture, which is a whole lot more than is needed in a room that is that small. The special education room has got 12 light fixtures with 2 bulbs per light, which is also a lot for such a small room. The special Ed wing hallway had a total of 3 light fixtures with 2 bulbs per light.

So in the end we found out that certain room like the library, the special education room, the teachers lounge, and the ATM room had way too much lights and lighting for the size of the room and the little area that was being lit up. Another thing that we discovered was that each of the rooms have and leave the lights on an average of 7-9 hours a day and they really don't need them on all of that time. A recommendation that we have is to shut off the lights when they aren't being used and to get rid of some of them and make it so that there are less lights in each room because those rooms don't really need that much light. The hallways are another issue because we really don't even need lights in the hallways because its not like they are ever used.

Linda, David and Cat 12-1-08

Appliances Audit Essay

For this project my group had to go to a specific area of our school to find out how much it costs to use the electrical appliances everyday for the 180 days of the school year. Our groups had the Special Education Hall and the Library. We had to look at the wattages, voltages and the currency and if it is UL tested. UL tested means that the appliance is safe to be used.

In the Library we had to see if all the appliances were UL tested and see how much energy the appliances use. Everything in the Library was UL tested. Some of the appliances in the Library were four Dell Laptops, which were UL tested. The Dell desktop cost $213.84 to run, which was the most money out of all the appliances in Library and the Dell laptops cost around $28.08.

In the Library's office Room everything except the Coffee heater was UL tested. The coffee heater also cost the least to run with the price of $.95. The microwave in there cost the most with the price of $855.36.

In the Education Room everything except for the fridge is UL tested. There are two appliances that are barely used which make it hard to tell how much energy it cost to run them. Those two appliances are the boom box and the T.V. The most expensive appliance in the Education Room was the pencil sharpener and the least expensive was the fridge. The pencil sharpener cost about $142.56 and the fridge cost about $53.06.

In the Special Ed. Room everything except the paper shredder is UL tested. There are two appliances that are barely used which make it hard to tell the cost. These items are the Dell laptops and the phone. The most expensive appliance is desktop and the least

expensive appliance would be the Auditory Trainer. The desktop costs around $213.84 and the Auditory Trainer costs around $9.72.

My group and I have learned that the everyday appliances like a fridge and a computer costs money even when they're not being used. They will still use a lot of energy when they are plugged in. If this school wishes to save money we would suggest unplugging appliances that are not necessary when they are not being used. In the Library they should get rid of one of their refrigerators and consolidate into the other one.

In the project we conducted, we found out the cost of appliances. Some of the pricing on the appliances was outrageously high. We found out that the school spends a lot of money that they don't need to spend. The school can save some money if they use other appliances that cost less to run.

Special Ed. and Library Lighting Data

Linda, David, Carl

Room #	Room Use	# of fixtures	# of lamps	Watt. Per lamp	type of lamp	ballests	foot candles	exit signs	typ of sign	light hours
117	Custodian	1	2	34	F34CW	magnetic	15	0		4 hrs
125	Ed. Room	2	3	32	FO32/735	electronic	45	0		6 hrs
127	Library office	2	3	32	FO32/735	electronic	42	0		7 hrs
129	Library	13	3	32	FO32/735	electronic	75	1	metal	15 hrs
149	Bathroom	1	1	20	NOTHING	magnetic	23	0		1 hr
149	Lounge	4	4	34	F34	magnetic	50	0		3 - 4 hrs
151	Hall	3	2	34	F0	magnetic	20	2	light	8 - 9 hrs
153	Gifted room	12	2	34	F400	magnetic	80	0		7.5 hrs
154	Ed. Tech.	6	2	34	F34	magnetic	30	2	paper	6 hrs
154	ATM Room	10	3	32	FO32/735	electronic	110	1	paper	3 hrs

Library Special
Needs Wing

Cost
of Lighting

Linda, David ,Cat

Room #	Watts	Kilowatts	Hours	KWH	KWH 180 Days	Total $ per 180 Days
Library	1248	1.248	15	18.72	3369	$505.44
Edu. ROOM	192	0.192	6	1.152	207.36	$31.10
Lib. Office	192	0.192	7	1.344	241.92	$36.29
ATM ROOM	960	0.96	3	2.88	518.4	$77.76
ED. Tech	408	0.408	6	2.448	440.64	$66.09
Special ED.	816	0.816	7.5	6.12	1101.6	$165.24
lounge	272	0.272	4	1.088	195.84	$29.38
Hall	204	0.204	9	1.836	330.48	$45.57
Bathroom	40	0.04	4	0.16	28.8	$4.32
Custodian	68	0.068	4	0.272	48.96	$7.34

Appliance	Current A	Voltage V	Wattage W	UL Tested	Hours per day	Cost per 180 Days
Dell laptop	3.34	19.5	65.13	YES	16	$28.08
Dell laptop	3.34	19.5	65.13	YES	16	$28.08
Dell laptop	3.34	19.5	65.13	YES	16	$28.08
Dell laptop	3.34	19.5	65.13	YES	16	$28.08
Dell Desktop	3.0 - 1.5	115 - 230	690	YES	24	$213.84
Dell modem	1.2	100 - 240	288	YES	24	$3.56
Gateway desktop	9.0 - 5.0	220 - 240	2160	YES	24	$26.73
Sceptre modem	3.5	12	45.6	YES	24	$29.48
Fax	0.5	120	30	YES	24	$35.64
Printer	1	110 - 220	40	YES	24	$71.28
Microwave	12	120	1440	YES	24	$855.36
T.V.		120	75	YES	0	
V.C.R.		120	16	YES	0	
Fridge	1.2	115	78	YES	24	$85.54
Coffee Pot	10	120	1200	YES	1 per month	
Coffee Heater	48	115	1500	NO	5 min.	$0.95
Internet modem	0.5	120	60	YES	24	$36.64
Printer	7.2	110 - 127	914.4	YES	24	$17.51
Copier	112	115	12880	YES	24	$53.06
Dell Desktop	3.0 - 1.5	115	960	YES	24	$213.84
Dell Modem	1.6 - 1.8	100 - 240	384	YES	24	$114.05
Phone	0.03	120	4.5	YES	24	$2.14
Pencil sharpener	2	120	240	YES	24	$142.56
Pencil sharpener	2	120	240	YES	24	$142.56
Boom Box	13	120	1560	YES	0	
Laptop	1.5	100 - 240	360	YES	24	$106.92
T.V.	1.8	120	216	YES	0	
Fridge	134	115	15410	NO	24	$53.06
Copier	12	120	1440	YES	8	$39.64
Microwave	9.1	120	1100	YES	24	$648.65
Fridge	4.5	115	134	NO	24	$320.76
Pencil sharpener	2	120	240	YES	24	$142.56
Computer	4.2	12	50.4	YES		
Phone	0.2	48	9.6	YES		$8.42

Cost of Appliances

Cat,Linda,David

Fan	0.8	120	96	YES		
Pencil sharpener	2	120	240	YES		
projector	4.5	120	360	YES		
sony	can't touch			YES		
T.V.	1.5	120	190	YES		
Dell laptop	3.34	19.5	65.13	YES		
phone	0.1	120	13	YES		
copier	9	120	1080	YES		$213.84
Pencil sharpener	2	120	240	YES		$142.56
paper shredder	0.8	115	92	NO		$57.02
desktop	3 - 1.5	115	690	YES		$213.84
Gateway modem	2	100 - 240	880	YES		$142.56
printer	1	100 - 240	240	YES		$71.28
speakers	0.2	120	25	YES		$14.26
Auditory training		120	15	YES		$9.72

Dale LeRiche

Energy Project For Lighting

My group and I have been doing a project to save Forest Hills Consolidated School money. My group was assigned the commons, the elementary, and the gym. We had to make a table of the light, the light cost, and the appliance cost. We did this because we needed to everything about the lights and the appliances in order to save the school money.

One thing that I noticed is that there are to many lights in those three areas. In those three areas there are 411 lights and I think that is too many. The lights cost $3512.22 for 180 days especially in the gym and the commons. I think that the school could use the windows to their advantage and use the light from the sun. Another way would be to keep some of the lights off or get rid of some lights because I do not think that we need all of the lights that the school has.

Another thing that I noticed is that the lights are turned on too long, the 411 lights that are in the commons, the elementary, and the gym are on 142 hours all together. What the school could do to prevent this is to get more energy efficient lights and or keep the lights off when classes are not being taught.

Something that I noticed is that the bathroom and locker room lights are on for almost all of school hours and sometimes more than school hours. What the school could do is buy some motion sensors to put facing the door which when something moves in front of the motion sensors than the lights will turn on for a designated amount of time and that will cut down on the light bill for the bathrooms and locker rooms.

Another thing that we could do to reduce the lighting bill would be to put sensors on the vending machines so they only turn on when someone is trying to use them. Doing this would reduce the lighting bill and it would also cut down on the electric bill because the vending machines would be off for most of the day. If the school does all of this and more the school could save a lot of money which could be put towards new supplies and other thing.

Appliance Analysis for the Elementary and Gym

There are 43 appliances they are on for a total of 510 hours a day, and have a total cost of $3,136.91 for 180 days. We could cut down on costs by doing some simple things everyday that could potentially save the school a lot of money. If we change our ways and unplug appliances when not being frequently used can save money. Although all appliances cannot be turned off like printers and computer chargers, we could turn off other appliances like VCRs and TVs.

If we turn off TVs, VCRs, Projectors, and pencil sharpeners we could save a fairly large amount of money from doing so. We don't exactly need to bend down every time and unplug the appliance directly from the outlet either. Surge protectors are cheap and are easy to use and they protect appliances from electrical surges. They all have a switch that turns off and on all appliances plugged into it. With having surge protectors connected to appliances we have more of a potential to save money for the school.

There are some appliances in the Elementary that cannot be turned off like the copy machines and computer chargers. They are just used too much to be turned off, and it isn't healthy for them to be frequently turned on and off because it puts stress on the appliances and makes them more prone to failure. The gym's sound system and scoreboard system is unable to be turned off because it is hardwired into the walls of the school itself. The gym unfortunately consumes a lot of power and costs the school a lot of money. If there was somehow to turn off the sound system then that would really help the school, but at the present time, there seems to be no way we could turn it off.

With all the appliances in the Gym and Elementary wing there are ways to save the school money. We could unplug appliances everyday when not being used. We could also buy surge protectors to make the process of turning appliances off and on easier for everyone and more enjoyable. There are unfortunately appliances like the sound system that cannot be turned off. If we take steps towards saving money and energy, we could make the tax payers a little

happier.

Dylan, Dale, and Mike 12/1/08

Lighting
Dale Dylan Mike

Room Number	Room Use	# of fixtures	# of lamps per fixture	Wattage per lamp	type of lamp	type of ballast	foot candles	# of exit signs	Type of exit sign
Kindergarden	teaching	12	3	32	T-8	smooth	97.4	n/a	n/a
First Grade	teaching	12	3	32	T-8	smooth	85.1	n/a	n/a
Second Grade	teaching	12	3	32	T-8	smooth	90.3	n/a	n/a
Third Grade	teaching	12	3	32	T-8	smooth	35.5	n/a	n/a
Fourth Grade	teaching	12	3	32	T-8	smooth	36.6	n/a	n/a
Hall	walking/getting to class	10 and 1	2 and 3	32 and 34	T-8 T-12	smooth/rough	37.5	2	new
Bathroom (Boy's)	rest room	2	6	32	T-8	smooth	49.8	n/a	n/a
Bathroom (Girl's)	Rest room	2	6	32	T-8	smooth	51.8	n/a	n/a
Commons	Lunch	16	48	32	T-8	smooth	27.9	1	new

Lighting
Dale Dylan Mike

Dasani Machine	Drinks	1	1	32	T-8	smooth		n/a	n/a
Powerade Machine	Drinks	1	1	32	T-8	smooth		n/a	n/a
Sound System	Music Pleasure	8 Speakers	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gym	P.E.	28	2	32	T-8	smooth	31.7	5	3 new/2 old
Teacher's Room	Teacher uses	4	3	32	T-8	smooth	97	n/a	n/a
Copy Room	copy machine	1	2	34	T-12	rough	31.1	n/a	n/a
Sp. Ed./Speech	Teaching	4	3	32	T-8	smooth	66.1	n/a	n/a
janitor closet	closet	1	1	60	incondescent	rough	7.1	n/a	n/a
boys locker room	locker room	5	1 and 2	32	t-12	smooth		n/a	n/a
girls locker room	locker room	4	1 and 2	32	t-12	smooth		n/a	

Lighting Cost of Elementary, Cafeteria, and Gym

Dale Dylan Mike

Room Number	Room Use	# of fixtures	# of lamps per fixture	Wattage per lamp	type of lamp	type of ballast	foot candles	# of exit signs	Type of exit sign	Hours lights are on per day	Cost in 180 days
Kindergarden	teaching	12	3	32	T-8	smooth	97.4	n/a	n/a	8	$248.83
First Grade	teaching	12	3	32	T-8	smooth	85.1	n/a	n/a	8	$248.83
Second Grade	teaching	12	3	32	T-8	smooth	90.3	n/a	n/a	8	$248.83
Third Grade	teaching	12	3	32	T-8	smooth	35.5	n/a	n/a	8	$248.83
Fourth Grade	teaching	12	3	32	T-8	smooth	36.6	n/a	n/a	8	$248.83
Hall	walking/getting to class	10 and 1	2 and 3	32 and 34	T-8 T-12	smooth/rough	37.5	2	new	8	$161.57
Bathroom (Boy's)	rest room	2	6	32	T-8	smooth	49.8	n/a	n/a	5	$77.76
Bathroom (Girl's)	Rest room	2	6	32	T-8	smooth	51.8	n/a	n/a	5	$77.76
Commons	Lunch	16	3	32	T-8	smooth	27.9	1	new	10	$414.72

Lighting Cost of Elementary, Cafeteria, and Gym

Dale Dylan Mike

Dasani Machine	Drinks	1	1	32	T-8	smooth		n/a	n/a	24	$20.74
Powerade Machine	Drinks	1	1	32	T-8	smooth		n/a	n/a	8	$6.91
Sound System	Music Pleasure	8 Speakers	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gym	P.E.	28	4	32	T-8	smooth	31.7	5	3 new/2 old	13	$1,257.94
Teacher's Room	Teacher uses	4	3	32	T-8	smooth	97	n/a	n/a	8	$82.94
Copy Room	copy machine	1	2	34	T-12	rough	31.1	n/a	n/a	1	$1.84
Sp. Ed./Speech	Teaching	4	3	32	T-8	smooth	66.1	n/a	n/a	4	$41.47
janitor closet	closet	1	1	60	incondescent	rough	7.1	n/a	n/a	0	$0
boys locker room	locker room	5	1 and 2	32	t-12	smooth		n/a	n/a	8	$69.12
girls locker room	locker room	4	1 and 2	32	t-12	smooth		n/a		8	$55.30

Apliance Cost of Elementary, Cafeteria, and Gym

Dale Dylan Mike

Room	Appliance	Wattage	Hours it is on	Cost 180 days
Mrs. L				
	3 laptops	65w each	24 each	$42.12 each
	projector	45w	1	$1.22
	stereo	14w	1	$0.38
	TV	125w	1	$3.38
	VCR	14w	1	$0.38
Mr. Mo				
	VCR	14w	1	$0.38
	TV	125w	1	$3.38
	Pencil Sharpener		1	
	2 Laptops	65w each	24 each	$42.12 each
	stereo	14w	1	$0.38
Mrs. L				
	TV	125w	1	$3.38
	VCR	14w	1	$0.38
	projector	400w	1	$10.80
	Pencil Sharper	240w	1	$6.48
	3 laptops	65w each	24 each	$42.12 each
Mrs Chassion				
	projector	540w	1	$14.58
	3 laptops	65w each	24 each	$42.12 each
	VCR	14w	1	$0.38
	DVD	10W	1	$0.27
Mrs. D				
	projector	540w	1	$14.58
	3 laptops	65w each	24 each	$42.12 each
	VCR	14w	1	$0.38
Mrs. Crawford				
	1 Laptop	65w	24	$42.12 each
	Charger	15w	24	$9.72
Copy Room				
	Copyer	1380w	3	$111.78
Boys Bathroom				
	Hand Dryer	2400w	1	$64.80
Girls Bathroom				
	Hand Dryer	2400w	1	$64.80
Teachers Room				
	Fridge	13w	24	$8.42
	Printer	Do not know	1	Do not know
	Microwave	1200w	1	$32.40
Gym				
	Sound System	Do not know		Do not know
	Score Board	12w	4	$1.30
Locker Rooms				
	2 Hand Dryers	2400w	2 each	$129.60 each
Cafeteria				
	Cooler #1	943w	24	$611.06

Apliance Cost of Elementary, Cafeteria, and Gym

Dale Dylan Mike

	Cooler #2	460w	24	$298.08
	Powerade	1207.5w	8	$260.82
	Dasani	1380w	24	$894.24

Chris ,Kyle, Jasmine, Josh Envo. Science.

Energy audit shop/lighting

Our group performed an energy audit regarding the lighting in the shop. According to the standard, recommended foot-candles set forth by the Maine energy education program we're well within the normal range.

In the shop, the lighting has all been newly updated so its pretty energy efficient. There are 111 lights in all and the shop is still kind of dim. The candle feet are at 67. We got this number through the induction of a new tool, the light meter which tells us just how much light the bulbs are outputting. Suggestions to save energy regarding lighting is to simply keep as many of them off for as long as possible; but again, its kind of dim in there already and one needs relatively bright light to work on their various projects.

One option would be to install skylights though this may not be monetarily efficient, so our final thought about the lighting in the shop is to simply leave it as is because its really not all that bad for its purposes.

Chris, Kyle, Jasmine, Josh Energy analysis for Shop Envo Science

Due to rising energy costs, our peers decided that it would be beneficial to perform an energy audit on the school and its contents. Our group was centralized in the shop where we recorded every single electrical appliance and mechanism. Through the use of a mathematical equation we were able to create an estimate of just how much every one of those appliances uses for amps and from that; we were able to estimate just how much every one of those *costs* per day, per year, or per week. The results were discouraging, the costs were astronomical for some of the tools held therein, things like the planer were *extremely* discouraging especially considering that electricity has taken a pretty big spike in pricing as of late.

The thing about the shop is that we can't really do a whole lot to manage its energy intake because basically everything is unmanageable. If you have to use the table saw you have to use the table saw, its not like we can turn down the power to it so the only recommendation we can suggest is to keep whatever one is not using off.

Josh, Kyle, Chris, Jasmine

shop power:										
machine using electricity	amps	watts	volts	total #	candle feat	type of light	hours in 180 days	total watts per 180 days	total kwh per day	cost per school year
lights		34		111	67	t8	1440	30192	30.192	815.40$
exit signs				3		new	12980			
kiln	50	44000	880	1			192	8448000	8448	1267.2
gas forge	120	26400	220	1			36	950400	950.4	142.56
plastic melter	1.77	212.4	120	1			6	1274.4	1.27	0.19
tv-vcr			120	1			50			
computers	120	14400	120	4			200	2880000	2880	432
clock			120	1			4320			
airport			120	1			4320			
ventalation	30	6600	220	1			2160	14256000	14256	2138.4
compresser	15	3300	220	1			720	2376000	2376	356.4
welders	50	6000	120	5			360	2160000	2160	324
sander	15	1800	120	1			90	162000	162	24.3
band saw	15	1800	220	1			90	162000	162	24.3
planer	20	4400	220	1			90	396000	396	59.4
table saw	20	4400	220	1			90	396000	396	59.4
edger	20	2400	120	1			90	216000	216	32.4
drill press	20	4400	220	2			90	396000	396	59.4
wood burners		100	120	4			20	2000	2	0.3
Heaters	2.24	492.8	220	3			900	443520	443.52	66.53
Sub Pannel	50	6000	120	4			800	4800000	4800	720
Climate thingy	11	1320	120	1			360	475200	475.2	71.28
Fan	2	240	120	1			360	86400	86.4	12.96
Small Hand Sander		140	120	5			900	126000	126	18.9
Hand Drill		190	120	2			360	68400	68.4	10.26
Big Hand Sander		115	120	1			180	20700	20.7	3.11
Uber Big Hand Sander		550	120	1			180	99000	99	14.85
Skill Saw		700	120	1			180	126000	126	18.9
Jig Saw		100	120	5			900	90000	90	13.5

Desk Grinder		110	120	1			180	19800	19.8	2.97
Big Mofo Hand Grinder		900	120	1			90	81000	81	12.15
Big Jigsaw		130	120	1			60	7800	7.8	1.17
Edge Grinder		170	120	1			60	10200	10.2	1.53
Glasses sanitizer		16	120	1			720	11520	11.52	1.73
Tin snips		220	120	1			25	5500	5.5	0.83
										total cost per year
										5890.92

Cost of Middle School wing Lighting Essay.

Kyle F. Rich M. Spencer C. Jamse M..

My group and I were assigned the middle school wing, to see how much it costs to pay for the lighting. We were also supposed to think of new ways to help save money by being energy efficient. The type of bulbs that we use in the middle school wing are T-12's, which are not the most efficient. The T-8 is much more efficient way to light a room.

The cost for each room varies depending on how many bulbs are present in the room; every T-12 has the standard 34 watts. The cost variations goes from $77.11 per year in Mr. Beuchamp's room to $244.19 in Mr. Mckendry's room. All rooms,and the hallway leave the lights on, on average for 7 hours per day, 180 days per year. If you add all of the costs per room up you are paying $1220.92 per year in the middle school wing. The best thing that I can think of for a recommendation is either use the lights less, or switch to T-8's. And if you want to make it even more cost efficient, get the T-8's and then leave the lights on for less time.

Lighting essay

After conducting our research my group and I think the middle school should unplug electrical objects when they are not being used. Electrical objects that are plugged into the outlet still use power when they are not being used. $77.11 is not a lot but after awhile it would add up to a lot of money. What we have been noticing the middle school staff has been leaving their lights on.

A different way to save energy is to not use lighting for exit signs. Instead of using lights in the exit signs, the school could use reflectors to reflect emergency lighting that is being used.

The ideas my group has given out would help the school to save money. The money the school saved could be used on sports like basketball, and baseball. The school also could use the money for school supplies.

We gave the middle school staff ideas about how to save energy. The teachers thought we had good suggestions. We told them to unplug electrical things when not in use and other electrical objects they might have if they could.

Rich M.

Kyle F.

James M.

Spencer C.

Middle School Lighting

Column1	fixtures	lamsp per fix	wattageperlam	type of lamp	type of ballast	foot candles	#of exit signs	exit sign
mr.b's room	6	2	34	T12	magnetic	85	0	none
hallway	8	2	34	T12	magnetic	9.3	2	smalltube
mrs.delafera	17	2	34	T12	magnetic	63.2	1	no light
mr.lacasse	17	2	34	T12	magnetic	39.2	1	no light
mrs.achey	17	2	34	T12	magnetic	63.9	1	no light
andysroom	19	2	34	T12	magnetic	54.4	1	no light
bathroomguy	2	2	34	T12	magnetic	29.1	0	none
bathroomgirl	2	2	34	T12	magnetic	29.1	0	none
lizhoytsroom	7	2	34	T12	magnetic	38	0	none

Kyle F.
Rich M.
Spencer C.
Poorsome

Middle School Wing:Lighting Cost Analasys

Kyle F. Smencer C.
James M. Rich M.

Spread Sheet #

LOCATION	fixtures	#of bulbs	watts	total watts	KW	Hours/Day	KWH	180days	15c/kwh	tot cost
Mr. B	6	12	34	408	0.408	7	2.856	514.08	0.15	$77.11
hallway	8	16	34	544	0.544	7	3.808	685.44	0.15	102.82
mrs.df	17	34	34	1156	1.156	7	8.092	1456.56	0.15	218.48
mr.lac	17	34	34	1156	1.156	7	8.092	1456.56	0.15	218.48
mrs.ach	17	34	34	1156	1.156	7	8.092	1456.56	0.15	218.48
Mr. Mac	19	38	34	1292	1.292	7	9.044	1627.92	0.15	244.19
B-room B	2	4	34	136	0.136	7	0.952	171.36	0.15	25.7
B-room G	2	4	34	136	0.136	7	0.952	171.36	0.15	25.7
Mrs. H.	7	14	34	476	0.476	7	3.332	599.76	0.15	89.96