Green Building

7th & 8th grade expedition

Capital City PCS - SY 2010 / 11

do the green thing

Making environmentally aware choices for our school

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Introduction

The recipe for a polluted planet calls for ½ of fossil fuels, ¼ humans, and ¼ of greed. Our planet is suffering from the biggest fever known to man: global warming. Our own selfishness and craving for energy is driving us towards the point of peak oil. The greenhouse effect is what scientists blame for the increasing temperatures and the violent storms that are occurring all around the world. The greenhouse effect is when greenhouse gases such as carbon dioxide (or CO2) in our atmosphere traps infrared radiation from the sun, therefore warming the planet. Your everyday life consists of everyday objects and activities that lead back to energy and where it comes from. Some of these objects are things like air conditioners, cars, lights, computers, etc. All of these seemingly ordinary objects use energy from fossil fuels that releases CO2 into the atmosphere, enhancing the greenhouse effect. We, as the most intelligent species on earth, must switch to better, cleaner energy sources so we can stop the enhanced global warming and help future generations live a clean, healthier life on planet earth!

Students in the 7th grade classes at Capital City Public Charter School have made posters and explanations describing unique kinds of energy sources and "green" materials and practices we expect to see in our new school. We wish to educate the public about the energy crisis humans have brought upon earth and ways we can help earth recover.

By: David

CONTENTS

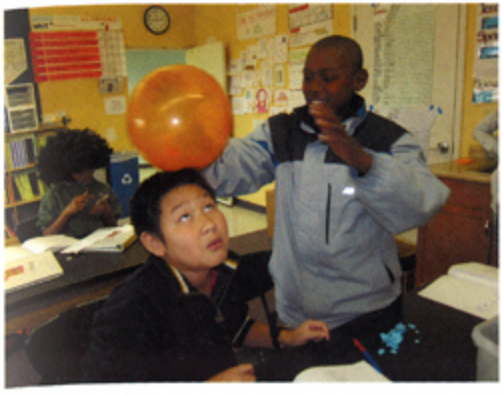




















AWS


Old Town

GREEN IS THE NEW BLACK.

In this book you will find out how you can go green (do things in a more environmentally-friendly way) and save some green.

This book starts out with ENERGY and different ways you can conserve energy. Believe it or not, the amount of energy you use today affects our quality of life tomorrow. This section includes facts about our current energy makers like coal. Tons and tons of coal are burned and used every day and part of that energy created doesn't even make it to the house or user. This section also presents ways to reduce energy use all together. For example, let sunlight into your home to not only warm it a little, but to also save energy on lighting.

The second section is AIR and how that will help you in the long run of owning your home. Paints and solar chimneys are featured, so please, check that section out. Also, find out what paint fumes do to the body and a very convincing paragraph on why you should switch paints.

Next is MATERIALS, and especially how that section can save you money. You will definitely want to look into that. The topics that are focused on in that section are carpet squares, composting, and recycled/reused materials.

The last and final section is WATER. This section of the book will tell you about water and how conserving it will help you... a lot. From information about local waterless urinals to out the front door, past the trees, to information about wetlands and their impact on the earth and life in the future.

So please, read and enjoy this book. Please remember to enjoy the cartoons and pictures throughout the book as well.

ENERGY

Coals "R" Us
Burger Town
0.8% real Beef
100% American!
CH: 141
News Blast!
Last Coal on Earth gone
(Foreve)
Coals "R" us reports: "oops!"
In other news all oil, natural gas, and uranium was accidentally sent into space then blown up. Nasa reports: "oops"
DVD
uh oh
My electricity bill is $96?
Energy Star
Wind not running out
Thats all.
In other news, Fast Food chain "Burger Town" has been caught using 4% American. They report: "oops"
Sure. Come on in.
Just wipe your feet first.
Can I stay at your place for a while?

Epic Wind

Ever wonder where our electricity comes from? In our area, we are probably getting power from coal and nuclear energy, both non-renewable resources. Non-renewable resources cannot be replenished (made again) in a human lifetime. When these energy sources get harder to find, the prices go up, meaning more expensive energy. Eventually they will run out completely, and when they do, where will we get our electricity? Our suggestion is to use wind energy. Not only will we help the environment, but we would save a lot of money in energy costs over time. Wind power is made from a turbine in a tower with blades at least 328 feet high. When the wind pushes the blades, it makes them spin, which makes a turbine spin. The spinning turbine generates electricity, just like coal and nuclear plants, minus emissions. Therefore, wind power is renewable energy, and it will never run out. Even the production of wind energy is green. Unlike coal mines or nuclear energy plants, wind turbines can be placed on fields or the ocean without hurting the wildlife. The government even gives grants to those who use renewable energy sources to make up for initial costs. So, in the end, why not use wind energy?

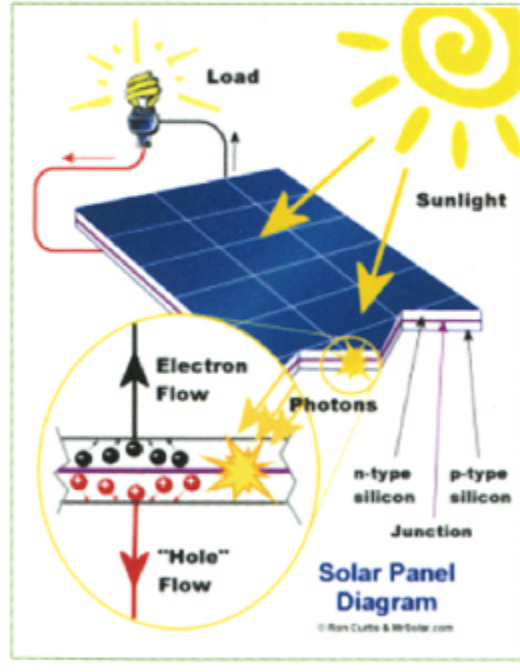
• A single, two-megawatt turbine can power one-hundred homes for an entire year, and costs about $3 million to install.

References:
- *www.mnn.com*
- *www.discovery.com*
- *www.epa.gov/greenbuilding/pubs/components.htm*
- *www.calrecycle.ca.gov/GreenBuilding/Basic.htm*


The energy crisis will be ...
OIL
...gone with the wind!
By Noah and Colby
Germany gets over 20% of its electricity from wind.

The Sun Will Eat Your Electricity Bil

Solar panels are very efficient in saving energy. Solar panels absorb the sun's energy using photovoltaic cells and turn it into electricity. Photovoltaic cells use photons from the sun's rays to convert them into electricity. Solar panels are green because they don't release any carbon dioxide (CO_2) into the atmosphere. CO_2 is bad because it traps heat in the atmosphere and makes Earth hotter. That causes the glaciers to melt and raises the sea level. Another way solar panels are green is that they are renewable. That means they can't run out and can be used over and over. Solar panels are placed on empty platforms like roofs, that way they are directly facing the sun. We should have solar panels because every hour the sun delivers as much energy as all of humanity uses in a year. The total energy Earth receives in 20 days from the sun's light is equal to all of the total reserves of coal, oil, and natural gas.

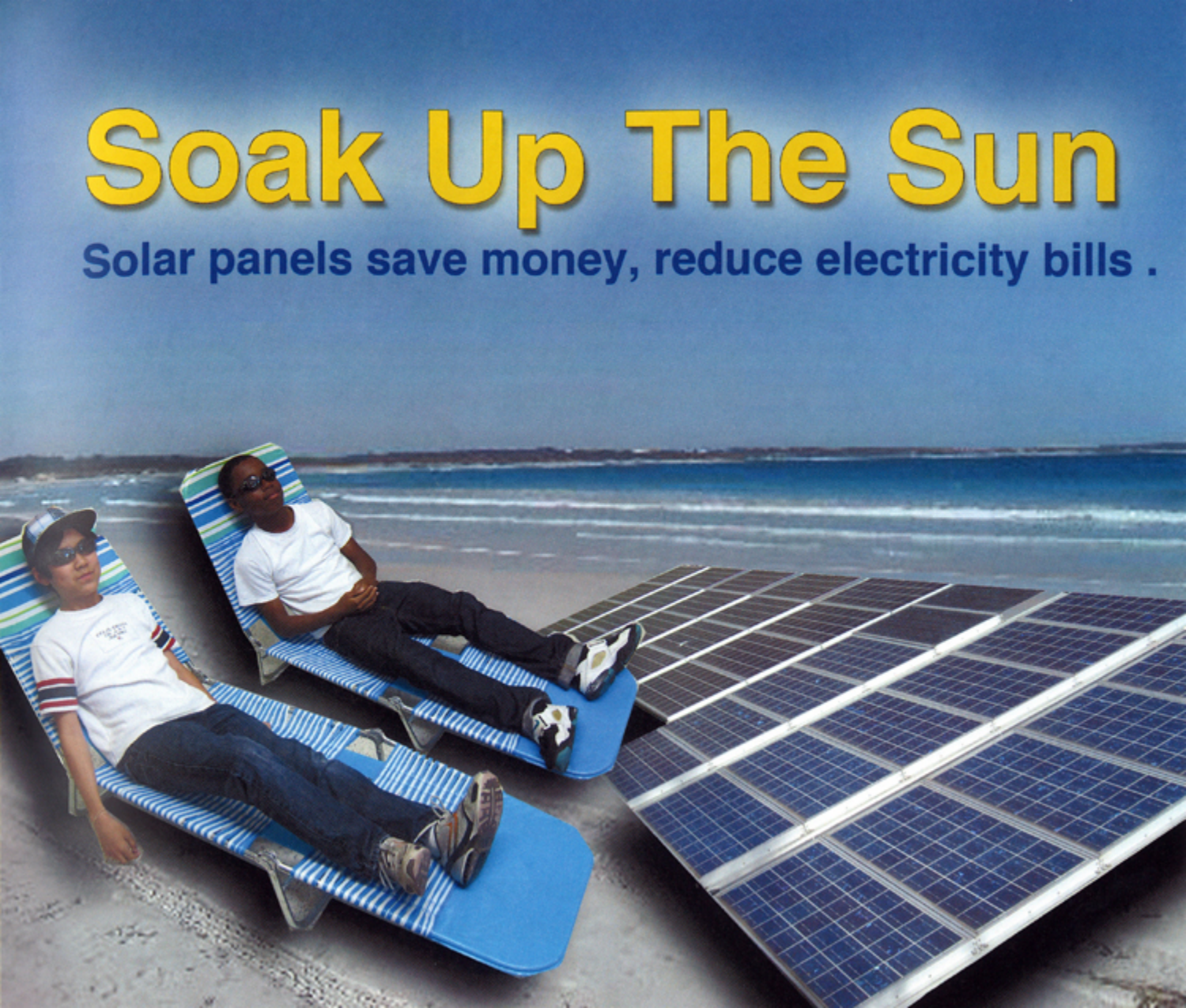


- Solar panels cost from $1.64 to $4.30 per watt
- Solar panels save the average person $50 a month on his/her electricity bill

References: www.sunelec.com, www.science.howstuffworks.com, www.edf.com, www.solar.calfinder.com, www.027ws.com

Soak Up The Sun

Solar panels save money, reduce electricity bills .



Within Our Earth

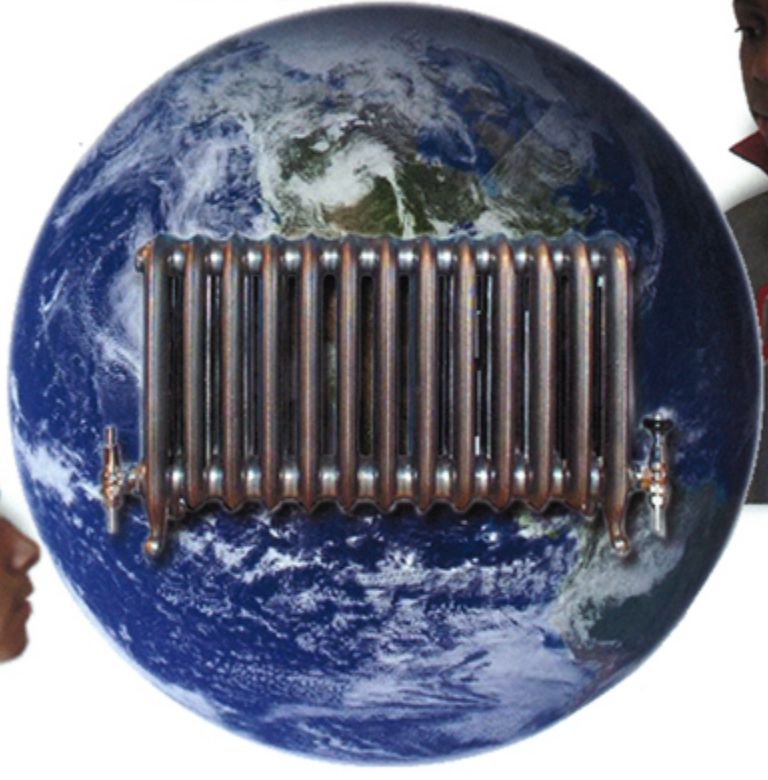
The word geothermal is a combination of two Greek words "geo" and "thermos," so geothermal literally means heat from the ground. The way you get geothermal energy is to dig into the ground and place water pipes in the well you construct so you can absorb warmth from Earth. There are a few ways to get heat from within Earth, like doing separate methods for different techniques, and geothermal energy can save you over $60 per month. In the winter, one way to get warmth is to insert water pipes into the underwater well and transfer the heat through the pipes to the room and other pipes above. In the summer, the process is flipped and a non-dangerous fluid removes heat from the building and transfers it to the relatively cooler ground in order to cool the building. Heat pumps for commercial buildings are usually $5000-10,000 and can last up to 22 years, so if you take the time to do the calculations you will see you could save $60 a month for 22 years, nearly $16,000 on your $5000-10,000 investment! Geothermal is a very green energy producer because it's a renewable energy resource that can never run out and does not emit CO_2 into the air when in use since the burning of fossil fuels is not involved. This should be used in our new school because it saves a lot of money over time since you don't pay monthly, it's eco-friendly, and it can provide 100% of heating and cooling when in use.

Additional Fact:

- Geothermal energy use has very low emissions of greenhouse gases about 3% of the carbon dioxide emissions of a fossil fuel power station.

References: www.ucusa.org, www.eia.doe.gov, www.geothermal-heat-pump-resource.org

Digging for gold is finally clean



Geothermal energy use has low emissions of greenhouse gases (about 3% of a fossil fuel power station).

Big Windows Save Energy

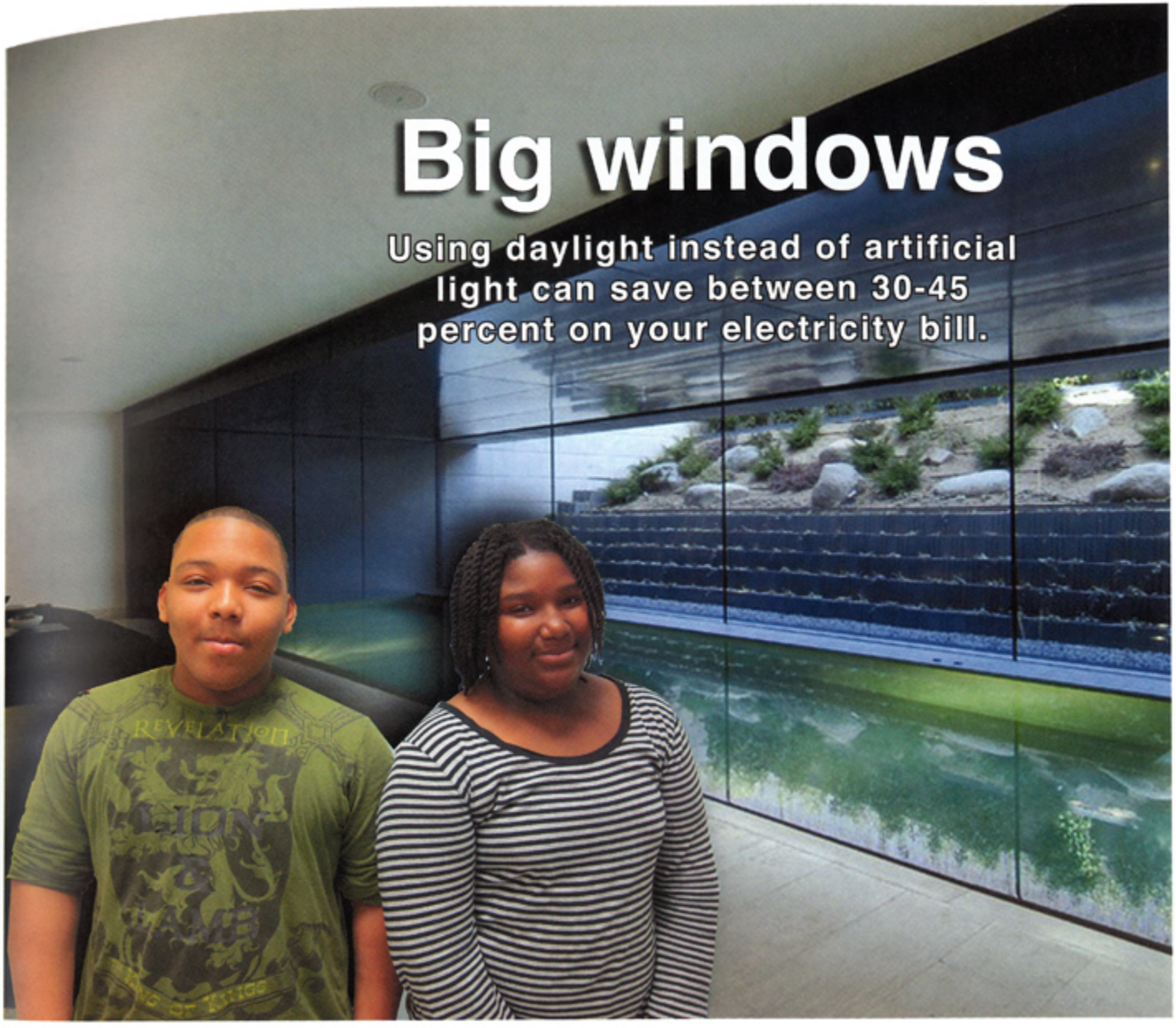
Big windows use natural light from the sun. It is better because you don't need to use artificial light. Also, natural light makes students more comfortable and they can focus better. If you have big windows, the light will shine. Here is something that is good: with new technology (double pane windows), when the sun comes in the big window the heat gets trapped outside by gas in the window, meaning that the room stays cool in the summer. Big windows will help you save energy and keep you from wasting money.

Additional Fact:

•Using daylight instead of artificial light can save between 30-45 percent on your electricity bill.

References:

- *http://www.sidwell.edu/middle_school/ms-green-building/index.aspx*
- *Sips.org/content/green-building*
- *Greenbuildingadvisor.com*


Big windows
Using daylight instead of artificial light can save between 30-45 percent on your electricity bill.

Looking Up Is So Bright

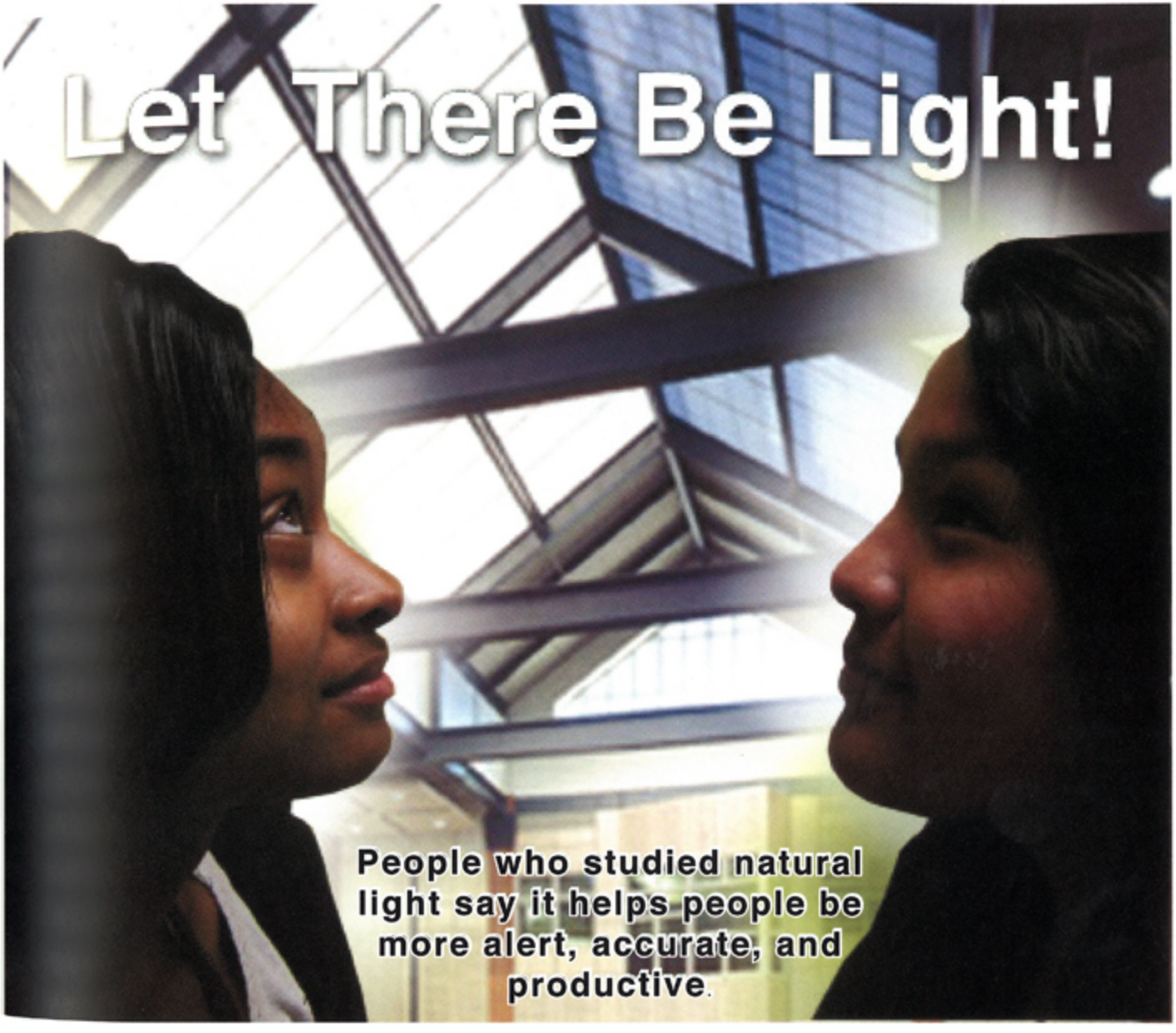
In our new building, CCPCS should install skylights. Skylights are windows in the ceiling to bring in natural light. There are three different types of skylights CCPCS can install. Ventilating skylights bring extra light and air into a room. Fixed skylights are just for natural light to come in. Lastly tubular, the newest skylights, have a tube for light to travel through that brings in a lot of light. Artificial lights are wasting energy but skylights don't waste energy because they use natural light from the sun to light a room. Skylights make the room brighter than artificial lights. It saves you money on the electricity bill. You would be amazed by how much the electricity bill goes down. 26% of a school's energy bill goes toward artificial lighting, so if you use natural light in the classroom instead, you can save a lot of money. Can you imagine how much we could save on the school? Well, keep thinking! Natural light is FREE and a RENEWABLE source. If skylights cover most of the school's roof area, we can reduce the building's CO_2 emissions by almost 50% during daylight hours. By installing skylights, our school is helping decrease the enhanced greenhouse effect by putting less carbon into the atmosphere. Less carbon in the atmosphere can decrease global warming. Installing skylights and green features is making an environmental change for our school, community, and the world.

Facts:

- The glass on skylights has low emissivity to keep UV rays out
- People who studied natural light say it helps people be more alert, accurate, and productive

References:

- *www.ehow.com*
- *www.plskylight.com*
- *www.articlesbase.com*
- *"Skylights Save Energy" by Bill Hawker, www.rci-online.org/interface/2006-03-hawker.pdf*
- *U.S Energy Information Administration*


Let There Be Light!
People who studied natural light say it helps people be more alert, accurate, and productive.

Be Energy Efficient and Open Your Window

Who knew opening your windows can save money and be energy efficient? Windows that open don't use power when you open them, the air circulates around the room, and you will feel the breeze. We think the windows should be closed when A/C comes on to save money and energy. They are also green because you don't have to do anything with a window that's opened, just leave it open. Then another green thing is the air because it is not powered by anything. A fan is not green when it makes wind with electricity. I use Sidwell Friends School as an example because they are energy efficient and I think all schools should do the same and save energy.

Additional Fact:

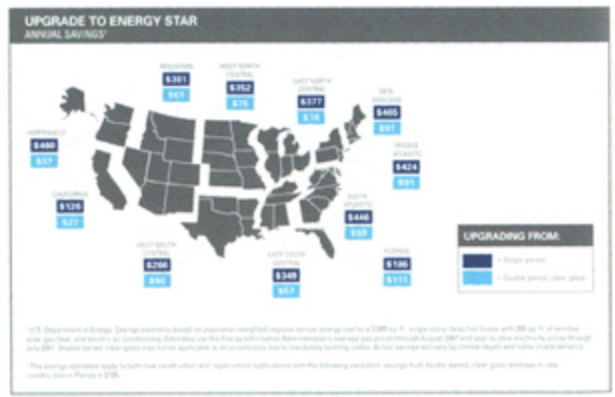
•A window is one of the best green things in the house because when you look at your bill, it doesn't say anything about opening your window because it is free. Be green and stop using your A/C. Use your window!.

References:
www.sidwell.edu/middle_school/ms-green-building/index.aspx,
www.Sustainca.org, www.Ase.org/efficiencynews/somebody-open-window


The fresh air is blowing your bill away
Opening your windows and turning off the a/c saves energy and doesn't waste electricity.

Energy Star Certified Double Pane Windows

Circulation Throughout the Nation



Energy Star certified windows will have you look at your old windows and say, "Oh please." This element is as green as can be and can save you a lot of money. It will cut your heating and air conditioning bills in half. An Energy Star certified window consists of two glass panels set in a frame. The glass is separated by a gap about ½ to ¾ inches wide. The gap is filled with non-toxic gases such as argon. The argon gas provides insulation through the window that makes it cooler in the room. It keeps the space cool inside when it is warm outside and vice versa. The cost for a regular window is about $300-$700. An Energy Star certified window will cost from $240-$500. As you can see, choosing Energy Star windows as opposed to regular windows is cost-competitive. In the graph to the right it tells you how much you would save in our area of the U.S. In an ordinary family home you save about $424 a year by switching to Energy Star. In a school the savings would be much greater because of the size. You can save a lot of money in the long run.

•In an average-size public high school building, with double-pane windows you can save about $8,500 a month on heating and cooling bills.

References:
www.Greenbuildingtalk.com
www.Energystar.gov
www.wisegeek.com

In an average-size public high school building, with double-pane windows you can save about $8,500 a month on heating and cooling bills.

Double pane now, or painful energy costs later

The Natural Slant of Sunlight

Why use artificial lights when the sun is already on? Our element is slanted ceilings. A slanted ceiling is basically a regular ceiling but it has a slant which allows you to add bigger windows to let more sunlight in the room. The point of having a slanted ceiling is to use natural lighting so you don't have to use artificial lights all the time and raise your electricity bill. They can be very useful for when there is a sunny day. According to a report by the National Center for Education Statistics, 72% of the cost of energy in education buildings goes toward electricity, with the majority of electricity (56%) going toward lighting. It also states that America's K-12 schools will spend $6 billion on annual energy costs, a cost that is second only to salaries and exceeds that of computers, supplies, and books. Finally, in our opinion, slanted ceilings are greener than even compact florescent light bulbs, because they don't use energy at all.

Additional Fact:

- According to research, people also perform better under natural lighting.

References:
•http://www.savethebulbs.org/schools.html
•http://www.bestcontracting.com/best-contracting-blog/bid/53062/Daylighting-Save-energy-and-increase-productivity-part-1-of-2


A slanted ceiling
is like a math alligator
they both eat the bigger number.

Sensor Lights

Turn Off the Lights!

Do you think your electric bill is too high? Sensor lights can save you money and energy! Sensor lights detect motion. When motion is detected the lights will automatically turn on. When motion is not detected the lights turn off. These lights help save energy by using less power. Incandescent lights, or normal lights, waste energy. If normal lights are not turned off you waste money and energy. Wasted energy equals less money in your pockets. Saved energy equals more money in your pockets. Cha-ching!
Additional Fact

•To install sensor lights, it will cost between $30-250, but they will save energy and will save the school lots of money!

References: www.planetgreen.discovery.com/home-garden/save-energy-motion-lights.html

SENSOR LIGHTS

To install sensor lights, it will cost between $30-250, but they will save energy and will save the school lots of money!

Be Bright!

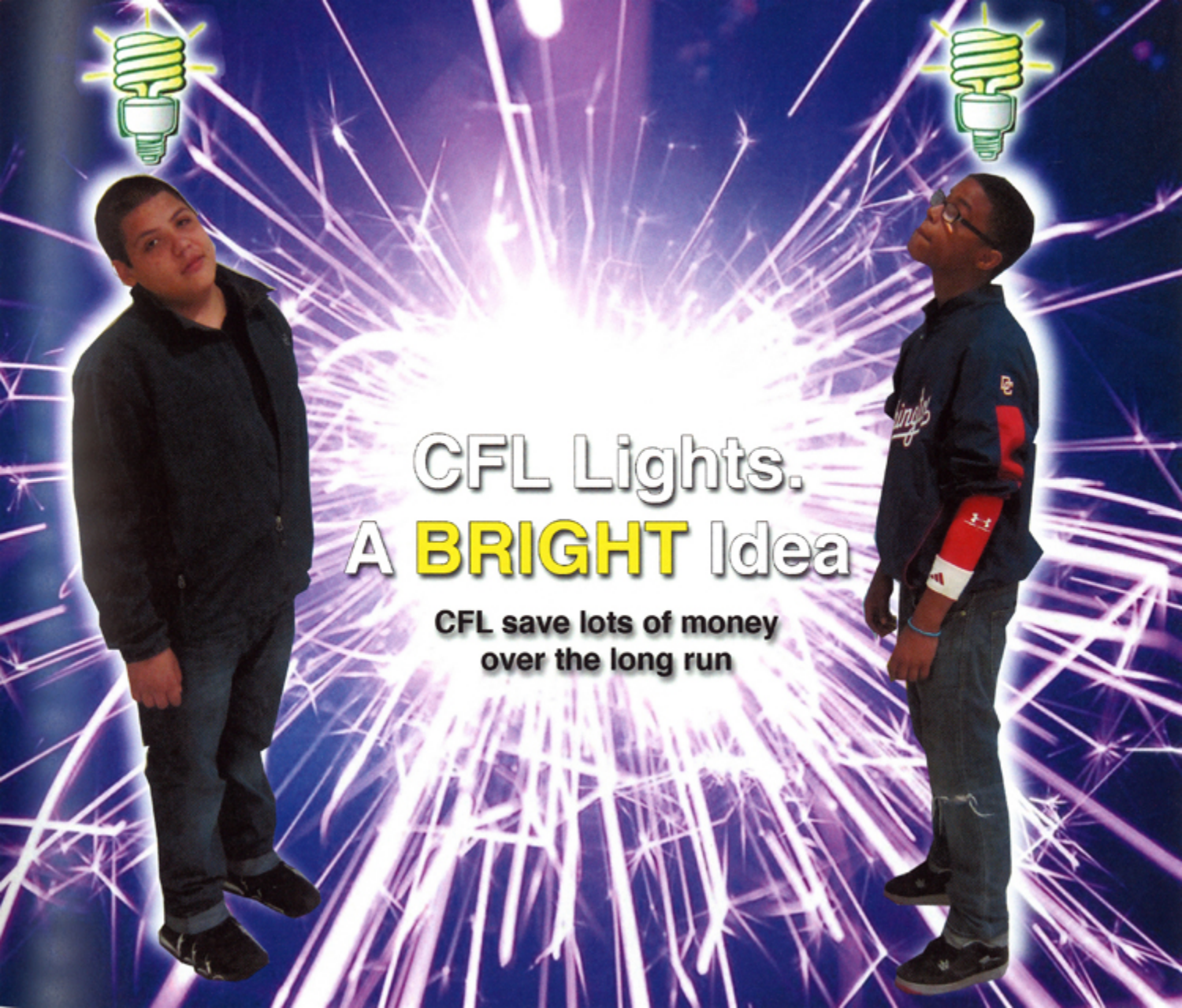
Compact florescent light bulbs (CFLs) are efficient, saving energy and money alike. Artificial lighting accounts for close to 20% percent of the average home's electric bill. Energy Star qualified CFLs use up to 75% percent less energy than incandescent light bulbs. CFLs last up to 10 times longer, cost only a little more up front, and provide a quick return on the investment. Compact fluorescent light bulbs are the best lights to have in our school next year because we won't spend very much money on them, we can save more money on our electric bill, and we can also save more energy.

Additional Fact:

- CFL bulbs can save you more than $140 dollars over the lifetime of the bulb

References:

•www.energystar.gov – "Frequently Asked Questions: Information on Compact Fluorescent Light bulbs"


CFL Lights.
A BRIGHT Idea
CFL save lots of money
over the long run

White is the New Green

If you want an idea about helping the school go green and feeling refreshed, then please read more. Having a white roof in a building can reduce energy bills up to 50%. If a roof is white, most of the sunlight reflects back into space so it doesn't add extra heat to the building and Earth. A white roof works when the sun's rays are going directly to the roof so the light reflects toward the sky. Also, a white roof makes the dwelling cooler, saves energy, and cuts carbon emissions. If we have white or light-colored roofs it will save energy and money in the future. For example, two families used 35% less electricity because when you have a white roof, you won't have to use as much air conditioning to cool the building.

Additional Fact:

- White roofs create energy savings by cutting the cooling costs.
- It costs only 15% more than a dark roof to build a white roof.

References:

- *www.csmonitor.com/Innovation/Responsible-Tech/2008/1003/how-white-roofs-shine-bright-green*
- *http://www.nytimes.com/2009/07/30/science/earth/30degrees.html*


REFLECT ON
WHITE ROOFS
White roofs
create
energy savings
by cutting
the cooling
costs.

Our Green Can Make Our Earth Clean

Do you like the thought of having a roof full of flowers, plants, or herbs? This is called a green roof that is usually full of plants and flowers. A green roof is a garden on top of a roof that is on top of many layers of protective materials. Some of the layers filter the water so that it removes pollutants from going in the street. Green roofs reduce heat absorption and runoff. These plants could create food for our school and habitats for different little critters. Green roofs can also prevent heat from going in the building unlike black tar roofs. These roofs are very pretty and well put together. I know that it might cost a little more and it takes more work, but you should want to use more money rather than polluting more of our beloved Mother Earth. We could create a committee or it could be considered as community service for the high school students to monitor the roof (weed it and water it when necessary). So, if we want to have a pretty, eco-friendly roof, then this is the choice for you!

- Installing a green roof can cost $15-$20 per square foot.
- Installing a green roof with repellent/waterproof membranes may cost $10-$24 per square foot.

References:
1.http://greenroofs.org/index.php/about-green-roofs/green-roofs-faq
2.http://sidwell.edu/middle_school/ms-green-building/index.aspx
3.www.stormwatercenter.net


"Other roofs will be green with ENVY!"
Green roofs reduce runoff and they prevent dirty water from going into our local rivers.

AIR


You could change the Future
((Is this the Future you want?

Clean Shoes = Healthy Air

Do you like to breathe? I hope so! Well, did you know that having metal grates will make the air healthier to breathe? Metal grates, also known as walk-off mats, are made to clean the gunk off our shoes. These grates are green and long lasting. We should definitely install metal grates because they keep the air healthy and our shoes and floors clean. They keep the air clean because they clean the water/mud/dirt off our shoes. Most of these things (mud and dirt in particular) turn into dust, lowering the air quality. Having dirt in the air is bad, especially for people with asthma. So, installing metal grates will improve the air quality, making students with asthma breathe with confidence! with that being said, metal grates will really benefit everyone. It's a good investment because it only costs a little over $80 to buy/install. Another way that this is helpful is that with cleaner floors we require less cleaning products to clean the floors. That will definitely keep more money in our pockets! Another thing that helps us benefit is that metal grates don't contain VOCs like most carpets and rugs. These compounds evaporate easily at room temperature and often have a stinky smell. They can come from many products, such as office equipment, adhesives, carpeting, upholstery, paints, solvents, and cleaning products. Metal grates are helping us with having to use less cleaning products, which makes us have less VOCs. And all you have to do to keep a metal grate working is to clean the top everyday and underneath it monthly.

Fun fact:

- You can even order a metal grate made out of recycled metal!

References:

- *http://www.sidwell.edu/middle_school/ms-green-building/index.aspx*
- *"The Indoor Air We Breathe," US Department of Health and Human Services (www.dhhs.gov)*


Step inside;
the air is grate!
Adding metal grates to your building
will improve your air quality.

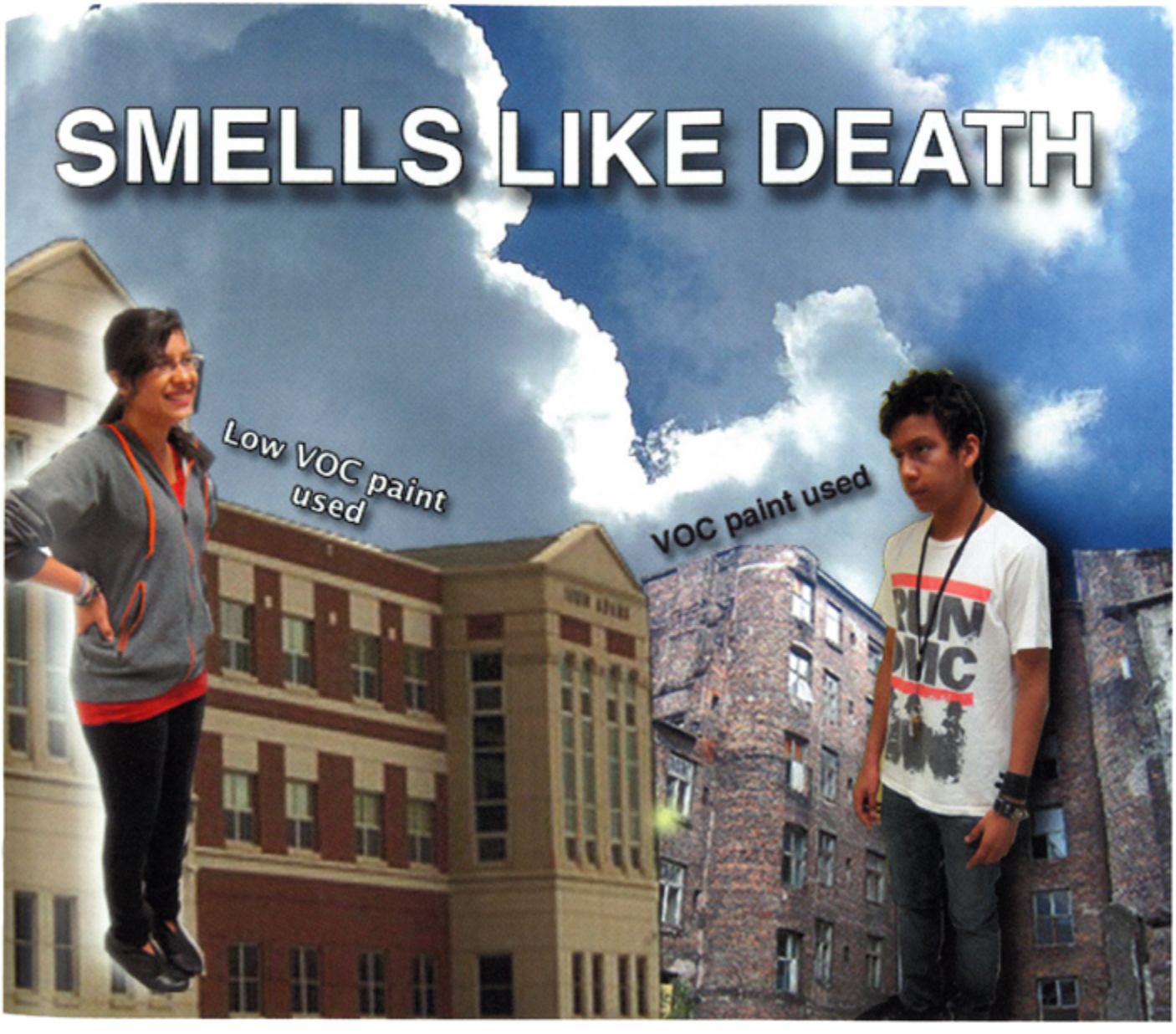
Painting Your Room with Cancer

Ever get that "new paint job" smell? And then, later in the year, in the middle of class you get a random headache that comes out of nowhere? You can avoid all of that by switching over to zero or low-VOC paint. VOC stands for Volatile Organic Compounds. This means this kind of paint does not stink and it is organic and non-toxic. It is not just an advertisement for paint companies; it is for the health of the students in the building. Researchers have found that 90% of your time is spent inside. Other studies show that paints that contain VOC chemicals increase the risk of cancer and asthma when it is inhaled, which basically means we are increasing the risk of cancer in students if we do not change to low- or zero-VOC paints. Also, the smell of regular paint can last up to a year. If our school repaints itself yearly, it would mean we were breathing in those toxins every day.

- Low-VOC paints last up to 15 years, and the low-VOC exterior paints last somewhere around 10-15 years.

References

- *www.treehugger.com*
- *www.practicalenvironmentalist.com*
- *www.epa.gov/iaq/voc.html*


SMELLS LIKE DEATH
Low VOC paint used
VOC paint used

Natural Ventilation

Solar chimneys are a natural way to provide ventilation to your home or building. An average of 77% of people in an average building are satisfied with having solar chimneys because they provide better natural ventilation. Only 50% of people in an average building are satisfied with mechanical ventilation like air conditioners (ACs). A solar chimney consists of a vertical shaft that is usually painted black to absorb heat. The sun's rays heat up the chimney and after it is heated, hot air is released. The chimney absorbs the heat from your house or building and releases it, too. Then, cool air comes inside from your building's window to fill the space. The bottom of the chimney is used to ventilate your home or building. A solar chimney can be up to 6 to 12 feet deep. A solar chimney is energy efficient; it uses 70% less energy than any mechanical ventilation device. A solar chimney benefits your home or building because it reduces consumption of electricity or gas used for an average ventilation device. Your bills will become lower than how they usually come with using mechanical ventilation. Solar chimneys do not emit CO_2 since it is not dependent on oil, gas, or electricity, therefore helps the environment. A solar chimney costs a little more than an average building, but it's worth it. The ventilation provided by the solar chimney is better air for you to breathe.

Facts:

- Thermal chimneys are not prone to frequent breakdowns.
- During the day it makes cooler air than nighttime.
- Annual energy costs are much lower with using a solar chimney.

References:

- *www.solarinnavations.com*
- *www.doityourself.com*
- *www.math.purdue.edu*
- *www.sidwell.edu/middle_school/ms-green-building/index.aspx*


With Solar Chimneys
You'll Have A Breeze
Of Money Refreshing
Your Home!
Solar chimneys are a way of natural ventilation!

Revenge of the CO_2!

"Oh no, there's an elephant in the room!" That's not an elephant you're feeling, that's the rise of carbon dioxide. We need oxygen to live, so why are our buildings full of carbon dioxide (CO_2)? A CO_2 monitor is shaped like a thermostat except it is digital. CO_2 monitors are very small and don't take up much space. They operate most effectively in large assembly areas, including gymnasiums, auditoriums, and churches. The Co2 monitor uses a chemical sensor to detect when the CO_2 level in the room is too high and it signals to open the window and let in fresh air. It gives air to students in school especially on hot days and it gives twice the quality of air that air conditioners do. Students would work so much better if the air was fresh, and they wouldn't fall asleep in class. Why don't we put in a product that is cheap and also that is saving the environment? The CO_2 monitor is green because, instead of using air conditioners, they tell you to open the window and allow fresh air in the room.

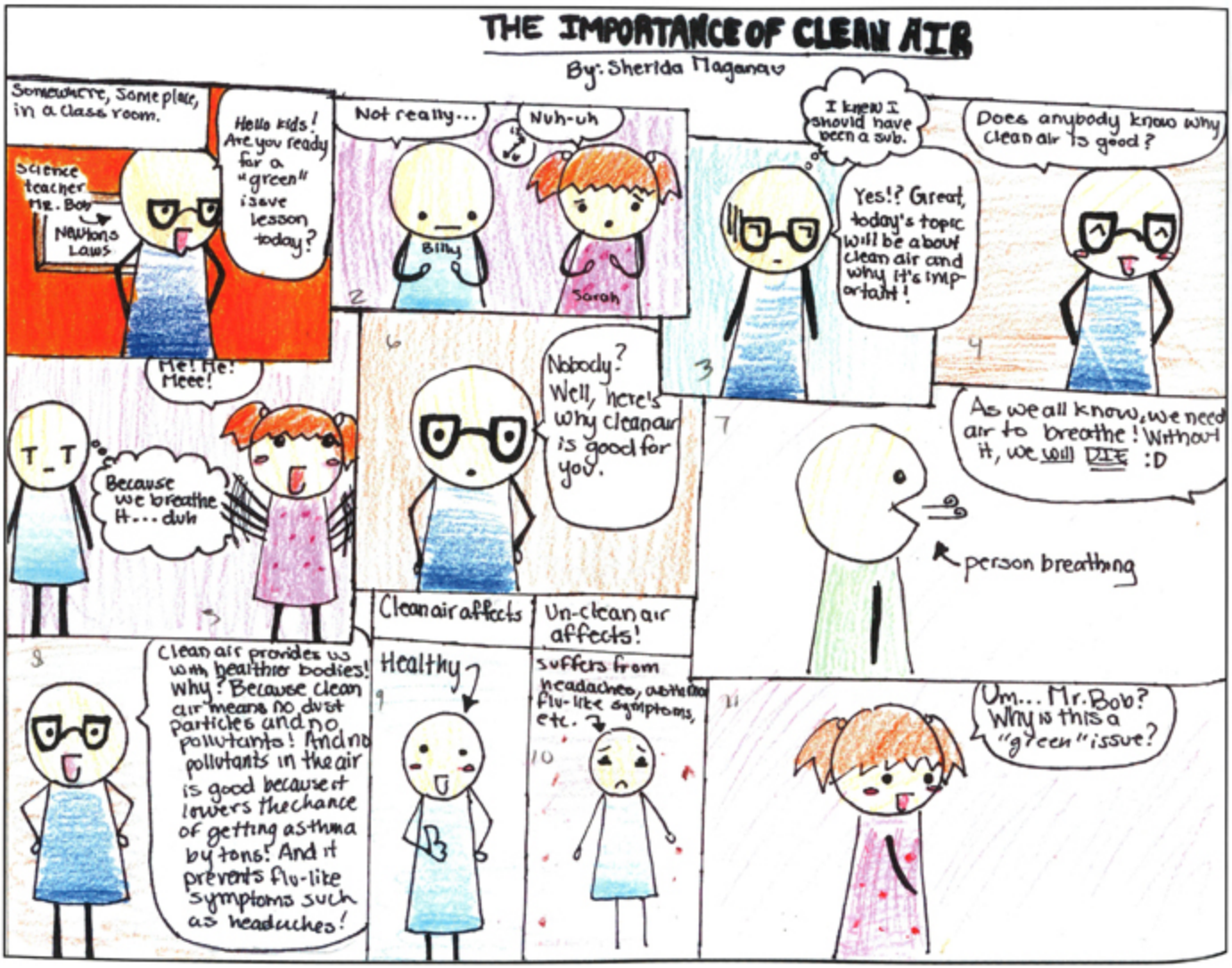
Fun facts:

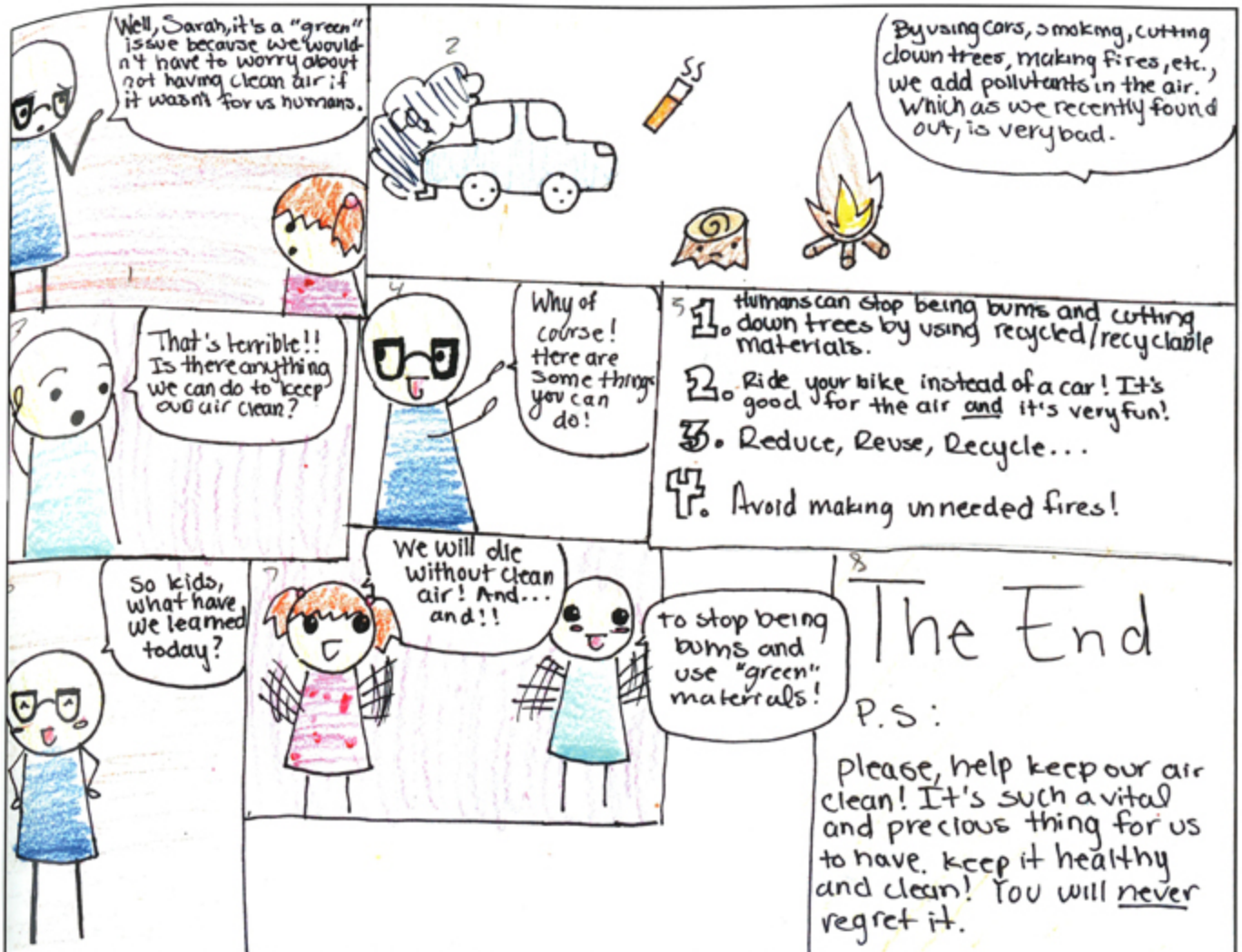
- CO_2 monitors only cost $190 to install.
- The increase of CO_2 is causing global warming.

References:

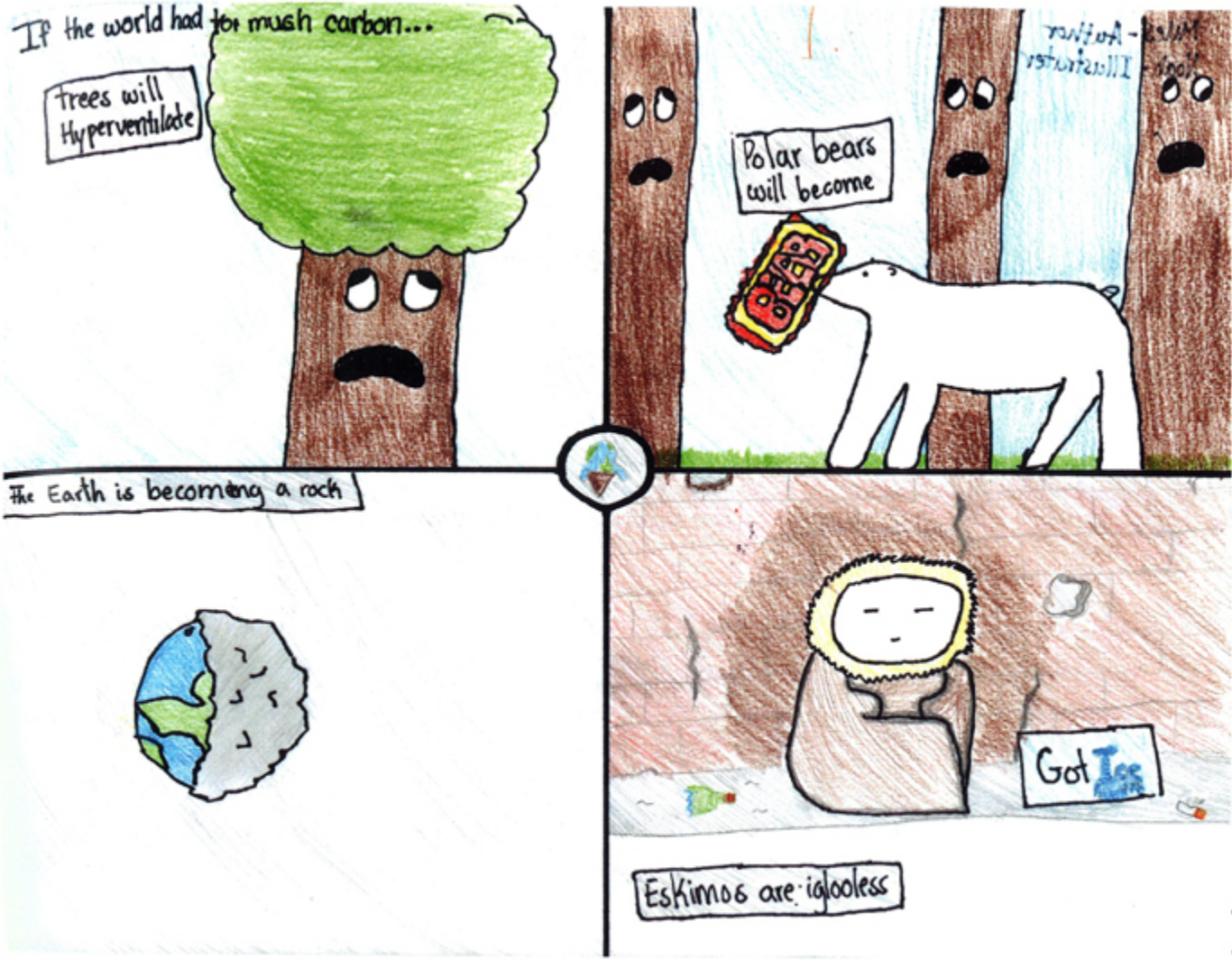
- *http://www.sidwell.edu/middleschool/me-green-building/index.aspx*
- *www.universe.com/70974/what-is-causing-weather-extreme-in-2010/*
- *www.google.com/product/catalog?h//c02monitor*


CO_2 monitors only
cost $190 to install.
EXTECH
842
ppm
CO_2
71°F
CO_2 mummies!


THE IMPORTANCE OF CLEAN AIR
By: Sherida Maganay
Somewhere, Some place, in a class room.
Science teacher Mr. Bob
Newtons Laws
Hello kids! Are you ready for a "green" issue lesson today?
Not really...
Nuh-uh
Billy
Sarah
I knew I should have been a sub.
Yes!? Great, today's topic will be about clean air and why it's important!
Does anybody know why clean air is good?
Hi! Hi! Meee!
T_T
Because we breathe it... duh
Nobody? Well, here's why clean air is good for you.
As we all know, we need air to breathe! Without it, we will DIE :D
person breathing
Clean air affects
Un-clean air affects!
Healthy
suffers from headaches, asthma, flu-like symptoms, etc.
Clean air provides us with healthier bodies! Why? Because clean air means no dust particles and no pollutants! And no pollutants in the air is good because it lowers the chance of getting asthma by tons! And it prevents flu-like symptoms such as headaches!
Um... Mr. Bob? Why is this a "green" issue?


Well, Sarah, it's a "green" issue because we wouldn't have to worry about not having clean air if it wasn't for us humans.
By using cars, smoking, cutting down trees, making fires, etc., we add pollutants in the air. Which as we recently found out, is very bad.
That's terrible!! Is there anything we can do to keep our air clean?
Why of course! Here are some things you can do!
1. humans can stop being bums and cutting down trees by using recycled/recyclable materials.
2. Ride your bike instead of a car! It's good for the air and it's very fun!
3. Reduce, Reuse, Recycle...
4. Avoid making unneeded fires!
So kids, what have we learned today?
We will die without clean air! And... and!!
to stop being bums and use "green" materials!
The End
P.S:
Please, help keep our air clean! It's such a vital and precious thing for us to have. Keep it healthy and clean! You will never regret it.

MATERIALS


If the world had too much carbon...
trees will Hyperventilate
Polar bears will become
BEAR
The Earth is becoming a rock
Got Ice
Eskimos are iglooless

A Reason for Leftovers

There is something new in town and it is on sale, the three-for-one earth saver for the whole world to know: COMPOST! Compost is good for our disposal system and is useful toward nature. It works by taking organic matter and breaking it down into useful soil made for plants. Its purpose is to decrease the amount of garbage in the landfills. Seventeen percent of what goes in landfills is compostable, and by composting you extend the life of landfill space. Made up mostly of food waste, this decomposing organic matter (in the landfill) produces something called methane, which is more harmful than carbon dioxide and contributes to global warming. Compost helps this problem by eliminating methane production. This should be in our school because it will teach and inspire us students about nature and organic elements. We might be able to use the organic soil (after composting) for our garden! There are two companies in DC that have compost businesses that pick up your foodwaste and compost it for you. The cafeteria can have a "compost bin" where we put our leftover scraps. This would be great for our school.

Additional Fact

- The use of compost can reduce the need for fertilizers for vegetable crops by 33-36%.

References:

- *www.compostcab.com*
- *www.envirlelation.com*
- *http://www.cawrecycles.org/issues/ghg/compost*
- *http://www.inc.com/magazine/20110501/social-entrepreneurs-how-ecoscraps-turns-trash-into-treasure.html*

A REASON FOR LEFTOVERS !

Composting is an easy way to reduce the amount of garbage you send to the landfills. It also creates good soil for planting.

Reuse, Reduce, or Recycle? We say REUSE.

There's a reason why "reuse" goes first, and in time I will tell you why. Crumbling down chipping off, falling apart buildings are usually thought of as trash, useless garbage, but are they really? A new way to reuse and reduce all at the same time has been discovered. By taking old pieces of "useless" buildings you will be able to dramatically reduce the 170 million tons of annual construction waste going to the landfills. For example, the dry wall from an old building can be taken through a process that can be referred to as rebirthing of the material. After that process you have basically made the material brand new and as sturdy and strong as if it really were fresh out the oven. This process of "rebirthing" of the material can be done with materials such us cement, wood, tile, cardboard, but the easiest and most money saving way is to simply reuse tires as playground turf and coal ash to improve concrete. All of those things that our school needs are just lying there in landfill. Reusing goes first because it is essential to keep as much of our waste out of landfills making your old product into something useful again is essential to going green. So, if you are going green, should you first reuse, recycle, or reduce? We say reuse!

Fun Fact:

- Salvaging old building material saves money by taking out the middle because you no longer need the big ships to ship in your product nor the people to actually get the material to make your product since you already have it right there in your local landfill.

References: http://www.epa.gov/greenhomes/smarterMaterialchoices.htm


By taking old pieces of "useless" buildings you will be able to dramatically reduce the 170 million tons of annual construction waste going to the landfills.
246
One man's trash.....

A Different Way to Make Carpets

Our product design is carpet tiles. They are made from recycled fibers. Carpet squares are eco-friendly carpet tiles. Regular carpets don't have squares that can come off like carpet squares. They can be installed by expert and non-expert installers. Worn or damaged tiles can be replaced without the added expense of replacing the entire carpet. If you have carpet squares you can take the parts that are stained and the rest can be left there. Most carpet tiles are 100% recyclable. Carpet tiles are "green" because it saves more money and it's helpful/easy. You can return your old carpets to a recycling facility so they can be used again to create beautiful flooring. Carpet tiles are easy to have at home. They cost less than an entire carpet. Five billion pounds of carpet goes into landfills every year. So if you want to make a change to Capital City Public Charter School you should consider using carpet squares.

Additional fact: Other than diapers, carpeting has the most waste filling our limited space in landfills.

Reference:
http://www.ehow.com/how-does_4622397_interlocking-carpet-tile-work.html
http://www.carpettilewarehouse.com/about-carpet-tiles/


Carpet squares
are affordable
to buy,
save you
MONEY,
and they are easy
to remove.
Square your savings!!!

WATER

Don't Leave Your Water Hanging!

Have you ever wondered how much a water faucet wastes? Sensor sinks automatically turn on when they sense a hand. Motion sensor activated sinks turn on when you wash your hands and automatically turn off when you are done. Sensor sinks save water and energy. These sinks save water by turning off when they are not needed. The result is less wasted water and a cheaper water bill for our school. They also eliminate the spread of germs after using the bathroom since there are no handles to contaminate. They are a green feature because of less water wasted. Sensor sinks are also the cleanest way to wash your hands because it reduces the bacteria people leave behind.
Additional Fact:

- Water conservation is key as some models of sinks use 1.5 gallons per minute.

References:

- *http://www.greenspacencr.org/building/pros/how_b/elements_b/water.html*
- *http://www.ehow.com/way_5139598_water-saving-tips-school.html*

Every Drop Counts

Did you know that low-flow sinks reduce water usage by 50%? These low-flow sinks save lots of money in schools and houses. Our element is green because it saves water from wastefully running down the drain. We all know without water we probably wouldn't be living very long. How a low-flow sink works is that the water is spread into smaller droplets. It doesn't seem like it because it also is introduced with air giving an illusion of having more water than it actually does. We can also get low-flow faucet aerators, which usually cost about 5-10 dollars. We should use this design because, if you think about it, there are millions of people all around the world! Could you imagine millions of people consuming water, and all that water being ditied and energy being wasted? If we used low-flow sinks in our schools maybe other people would be interested in doing the same. Reducing pollution and saving energy! Using less water is a huge impact, especially if only 3% of water on Earth is freshwater. Think about it, that's not even a lot of water. Also using less water saves more money. With that money we can make our school even greener.

"As children of a culture born in a water-rich environment, we have never really learned how important water is to us. We understand it, but we do not respect it". -WILLIAM ASHWORTH, Nor Any Drop to Drink, 1982

Additional fact:

- Faucets account for more than 15% of indoor household usage and more than one trillion gallons of water across the United States each year.

References:
http://www.centerforgreenschools.org/green-interactive.aspx
http://extension.umn.edu/distribution/natural resources/components/ DD694r.html
http://www.sftool.org/Learn/details/45
http://www.epa.gov/owm/water-efficientcy/products/bathrooms sinks faucets.html
http://jperret.tripod.com/water.html
http://www.energystar.gov/index.cfm?c=healthcare.fisher_nickle_feb_2005
www.green-home-source.comn
www.oursharedearth.conm
www.extension.umh.edu
www.conservewater.com
www.utah.gov
www.substainablechoices.stanford.edu
www.nlquery.eps.gov
www.wasauna.com

Low flow sinks are like finding a pot of gold.

Faucets account for more than 15% of indoor household usage and more than one trillion gallons of water across the United States each year.

Don't Flush Your Money Away

Every time you use the bathroom do you count how much water you've wasted? Don't you know that an average typical American person wastes 20.1 gallons of water just by flushing the toilet? That is a lot of water to waste, but there is a much more efficient way to use the toilet. The element I'm talking about is called a dual flush toilet. It works by using a full flush to flush down solid waste and a half flush to flush down liquid waste. It works by having two buttons, one for solid and one for liquid waste, so you won't over flush and waste water. By using this method it can use up to 67% less water than a regular boring toilet. It can also save an average household that switches to a dual flush toilet 4,000 gallons of water a year and hundreds of dollars on your bills. It can be very affordable for people on a low budget, as you can install a dual flush toilet kit for as low as $35 on your regular standard toilet. Also it fits in with people whose life is always busy because the dual flush toilet requires less maintenance. Overall the purpose is to decrease and save water by using less of it and to decrease the amount of droughts in the world. If you're looking for a toilet that can save you money and can save you water, and if you want to go GREEN, this is the toilet you need to get.

• When it comes to the cost of a dual flush toilet it can cost up to $175.00 for an average dual flush toilet at Home Depot. If you want to go fancy and get a name brand dual flush toilet it can be between the prince range of $250-1000.

References:
http://www.homedepot.com
http://home.howstuffworks.com/dual-flush-toilet.htm

Don't Flush Away Your Money!

Switch to a new dual flush toilet and you can save up to 4,000 gallons of water every year and 67% of water in your household

No Flush Included!

A waterless urinal will always beat a normal traditional toilet, any day or any time. It might cost a lot, between $250-$500 dollars for one unit, but it is still worth every penny and it will pay for itself after two years. A traditional urinal uses anywhere from one to three gallons per flush, consuming up to 40,000 gallons of water annually. And every 1000 gallons can cost from $7-$25. But the waterless urinal is a green product so it doesn't use flushes and that's better for nature, your city, and your wallet. The waterless urinal is a green product because it doesn't waste water, because wasting water is bad and water is important for the environment. The waterless urinal also has good features. It's clean because it keeps water from splashing on walls and forms seals against odors. Traditional flush urinals often run into maintenance woes. Valves, for example, get jammed. This is how a waterless urinal works. Waterless urinals use gravity to draw urine toward the drain through a trap. A trap allows urine to pass but makes a seal against odors. Waterless urinals don't use valves. A valve is a device controlling the passage of fluid though a pipe or duct. These are the reasons why waterless urinals will beat traditional urinals any day. By getting a waterless urinal installed you are saving water, money, the environment, and world. Oh, one last thing: these urinals only take one day to install.

Additional information:

- Waterless urinals don't have a flush handle.
- Waterless urinals save 45,000 gallons of water every year.
- There are 8 million urinals installed in the U.S alone with 100 million people who use them.

Reference:

- *Waterlessco.wordpress.com/2009/08/28/just-the-facts-mam-on-waterless-urinals/*
- *www.plumbinghelp.ca/waterless-urinal.php*

The Number 1 solution!

A waterless urinal uses no water so you don't waste any fresh water and you also save money.

Flowers Want Rain, Not Pain

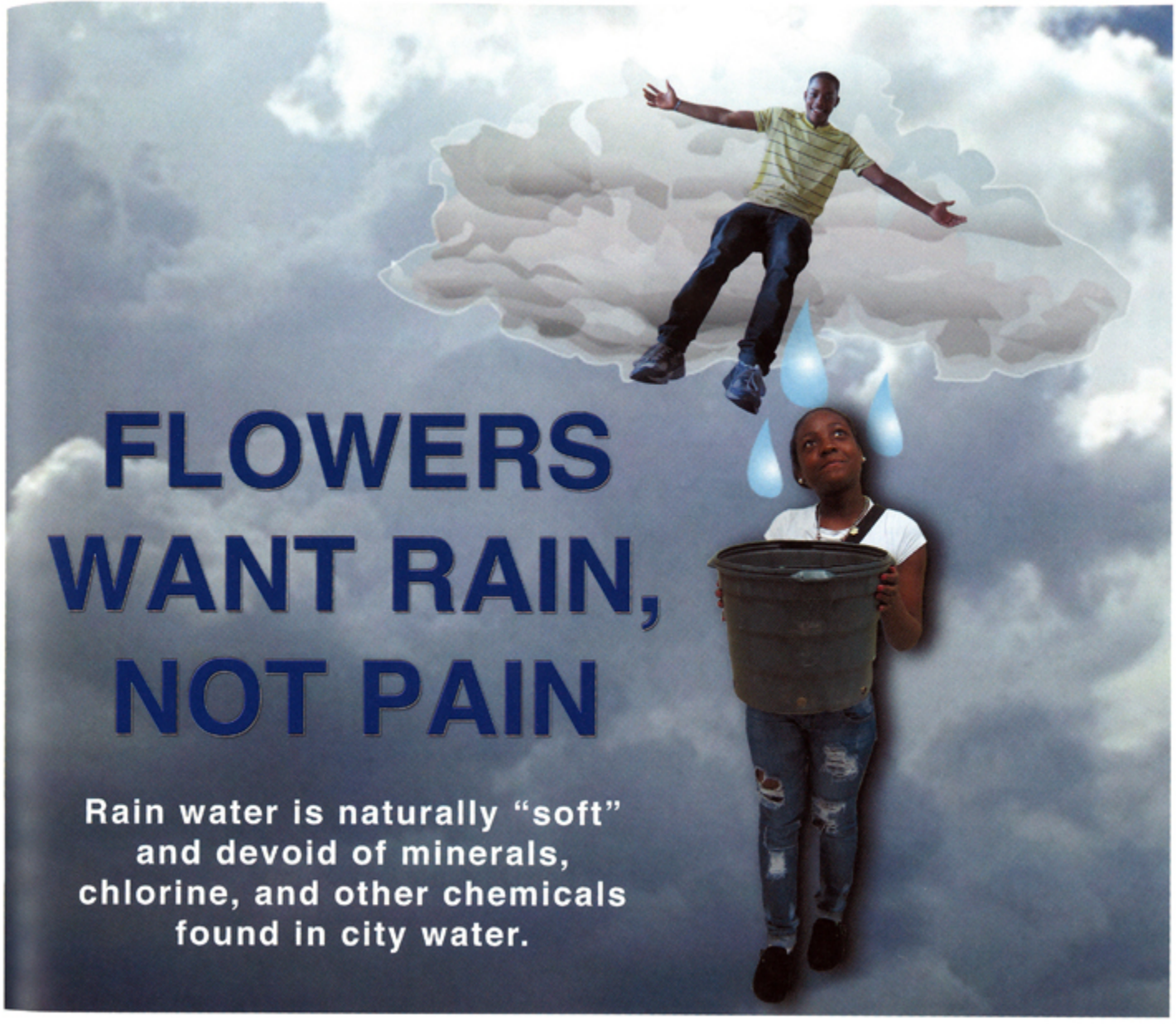
No more water bills. I say that because people complain about bills all the time, but the biggest complaint of all is about the water bills. We have a way to not use faucet water and still wash cars, water your gardens, lawns, and even stop flooding in your house when it rains. Rain barrels are containers that catch water that runs off the roof. Rain barrels come in various sizes, starting at 30 gallons, and can be made of either plastic or wood. They're green because when it rains, the water goes into the rain barrel and collects there, storing rainwater from rooftops to use later for watering plants and gardening. Rainwater is great for our school because tap water costs money, but rainwater on the other hand is free. Also it will help us money-wise, meaning lower water bills, and maybe even making a garden or two.

Additional Fact:

- Rain water is naturally "soft" and devoid of minerals, chlorine, and other chemicals found in city water.

References:

- *Sustainablelandscaping.com*
- *Howstuffworks.com*
- *Bridgingthegap.org*
- *Arlingtonva.us*
- *Arboretum.umn.edu*
- *Sunnydayrainbarrels.com*
- *Lid-stromwater.net*


FLOWERS
WANT RAIN,
NOT PAIN
Rain water is naturally "soft"
and devoid of minerals,
chlorine, and other chemicals
found in city water.

Save Water, Save Life

Gutters are like channels that let water down when the roof is flooded with rainwater. The water goes into the gutter and then leads the water into a pond, instead of being run-off, catching trash, taking it to rivers, oceans, and then killing poor fish. So that means it could be reused for things like washing and, flushing (it's not drinkable). Why should we start using gutters? Well, first, we should use gutters because not only do they save water bills by collecting the water and getting to re-use it instead of turning on the hose, they also show how to use a precious resource responsibly to make a difference in our environment.

- Gutters can save about 30 to 50% on a house's water bill. It could cost between $2600 and $5000, including installation cost, depending on the size of the tank.

References:
http://www.savetherain.info/media-center/rainwater-harvesting-faqs.aspx
http://www.roofrsi.com.
http://www.harvesth2o.com/raingutters.shtml


Gutter to pond is like water going through a Brita filter!
Gutters can save about 30 to 50% on a house's water bill.

Stop Running, Start Cleaning

Wetlands aren't just plants and water. They are giant filters because they clean water just like a pool filter. The way a wetland cleans water is very simple. As the water goes through the plants in the wetland, the plants suck up all the oil, metal, and other dirty things; this helps the water stay clean. Since the water is clean you can reuse it. For example, at Sidwell Friends Middle School they reuse their wetland water. Once the water is clean it goes through the building for the toilets and urinals. By doing this it helps them use 93% less of the District's water than they used before installing their wetland system. Other benefits from tidal wetlands are: they filter upland runoff, help flood control, and provide hatchery nursery areas for fish that humans eat. Wetlands also use less energy to process waste.

Additional Facts:

- 1 out of 5 kids worldwide do NOT have access to clean water.

References:

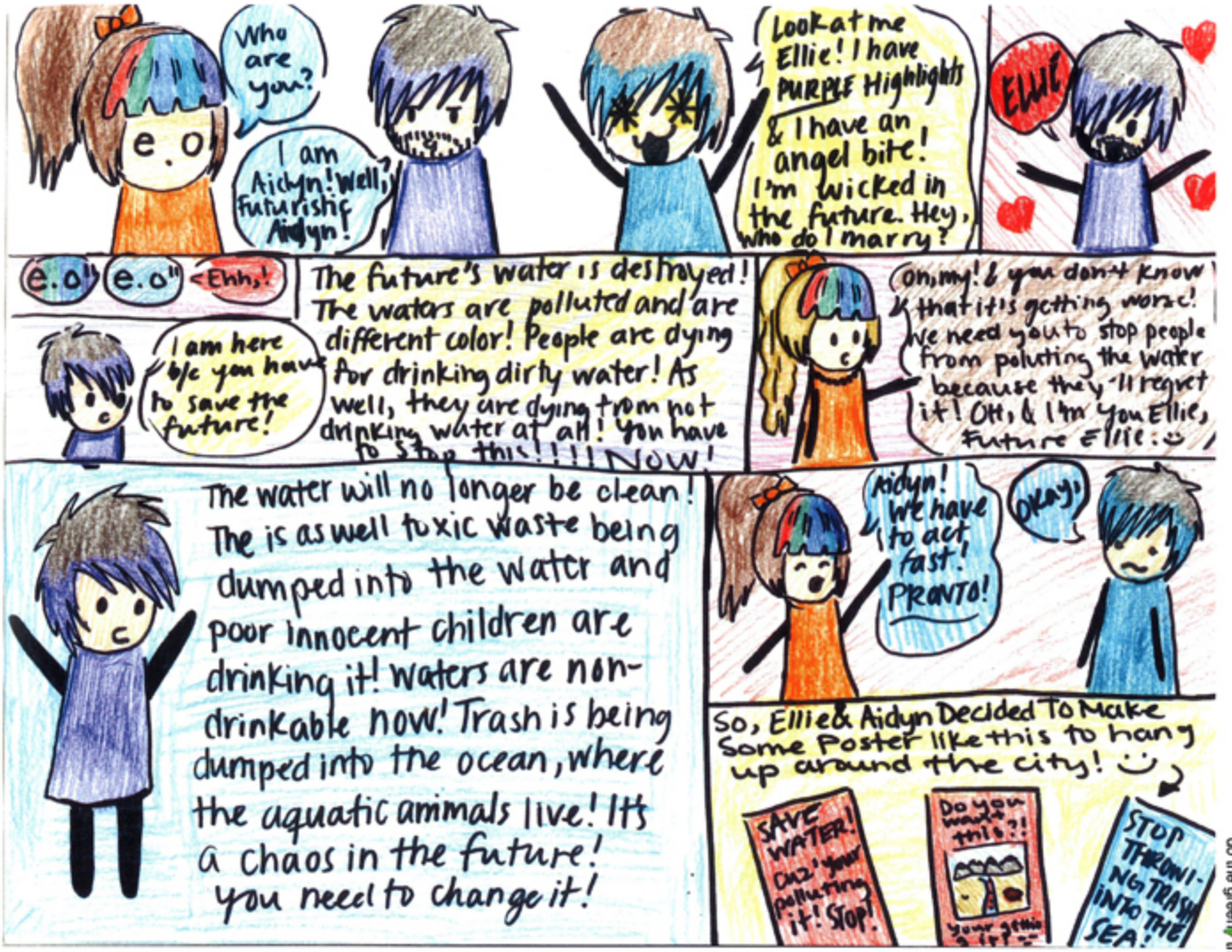
- *planetgreen.discovery.com*
- *sidwell.edu*
- *greenspace.com*
- *wetlands.org*
- *water.epa.gov*
- *wetlandswatch.org*


NO WETLANDS
WETLANDS
1 out of 5 kids worldwide
do NOT have access to clean water
Filtered water

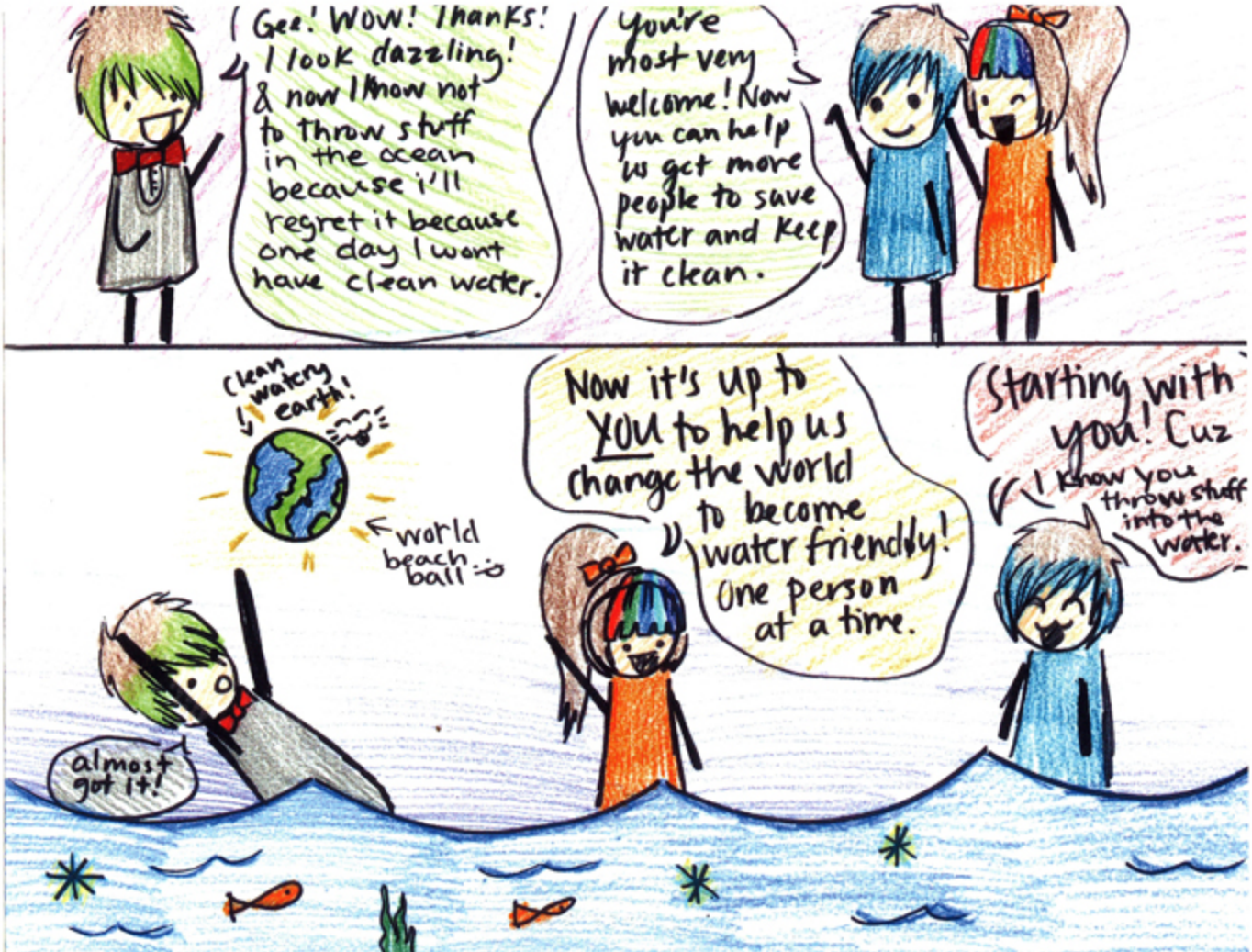

THE AMAZING
WATER
ADVENTURE
of
ELLIE AND AIDYN
By: Leideen Escobar! ~


Wait up! *Pant Pant* I'm thirsty!
I'm serious Ellie!
Hurry up slow poke!
Water fountain is over there, no worry!
WATER
Ah! That feels GOOD!
I Love Water
I'm glad you do! Some people don't care about water or just don't understand how important it is! I'm glad you do!
Of course I do... Ha,
You do know, right?! Aidyn!?
Could you, possibly, please explain it to me, cuz! I have no idea!
Don't get mad
GRUMPY FACE
FINE!
Basically, water is a very important element for humans to survive! We drink the clean non-poluted water from the city! Now, the problem is that people are throwing tons of trash into the ocean, ect. and out water is becoming polluted. For now it's like this →
Only 2 can polluting...


I can't imagine what would happen if the trash increases! We need to change Aidyn?!
Zzz
Wahh? What...
Forget it, Aidyn... Good bye! See you tomorrow!
I'm Gwh!
Oh?
Ahhhh!
Ellie!
it's ME!
I'M OLD e.o"
Take This! You'll need it!
look at this!
Oh My GOSH!
TOP SECRET
SECRET
TOP SECRET
TOP SECRET
Year 201


Who are you?
e.o
I am Aidyn! Well, futuristic Aidyn!
Look at me Ellie! I have PURPLE Highlights & I have an angel bite! I'm wicked in the future. Hey, who do I marry?
ELLIE
e.o
e.o
<Ehh,!
I am here b/c you have to save the future!
The future's water is destroyed! The waters are polluted and are different color! People are dying for drinking dirty water! As well, they are dying from not drinking water at all! You have to stop this!!!NOW!
Oh, my! & you don't know that it's getting worse! We need you to stop people from poluting the water because they'll regret it! Ott, & I'm you Ellie, Future Ellie :)
The water will no longer be clean! The is as well toxic waste being dumped into the water and poor innocent children are drinking it! waters are non-drinkable now! Trash is being dumped into the ocean, where the aquatic ammals live! Its a chaos in the future! you need to change it!
Aidyn! We have to act fast! PRANTO!
Okay!
So, Ellie & Aidyn Decided To Make Some Poster like this to hang up around the city!
SAVE WATER! Do' your polluting it! STOP!
Do you want this?!
STOP THROWING TRASH INTO THE SEA!


At the beach...
Aidyn! We're going to change our future and one day-!
Some idiot who just threw a coca-cola can in the sea
What are you doing...
He's Short!
uhh...
You need help... & a make over too... smh!
So, Aidyn and Ellie give the dude a lesson about water and give him a makeover, mostly Ellie does, but its OKAY! :)
Chair
Okay, so look fella'! You do not throw trash into the sea! You are polluting our water! & b/c of you and people like you! throwing trash into the sea, we will have no clean water!!! OKAY?!
So, me&Ellie are going to change your life style! We are going to make you green!
GREEN?!
Changing the World one Person at a Time!
knowledge in not throwing trash into the sea!
& water friendly! Because we are going to Change the World, one person at a time
AH!


Gee! WOW! Thanks! I look dazzling! & now I know not to throw stuff in the ocean because i'll regret it because one day I wont have clean water.
You're most very welcome! Now you can help us get more people to save water and keep it clean.
clean watery earth!
world beach ball
almost got it!
Now it's up to YOU to help us change the world to become water friendly! One person at a time.
Starting with you! Cuz I know you throw stuff into the water.

This book is dedicated to...

- Earth. You are our home and we ARE listening. We will take more care of you.
- Those who don't know what is happening and people who do know but won't change.
- To the students of CCPCS because there are some people who aren't doing things that are green or they don't know what is happening to our planet.
- We would like to thank the following people:
- Mrs. Byrd and the CCPCS Board for taking our requests seriously.
- Lucy Labson from DC Public Library for providing us with funding to create our project.
- Everyone and anyone who is making even the smallest change to help Earth stay healthy and global warming free.
- Ms.Graves, for helping us so much in everything. I think you deserve something in your name. Enjoy this book, Ms. Graves.
- Mr. Cuevas...one man's trash is another man's art.
- Ms. Patel, Ms. Zika, and Mr. Massey for each helping with the book in a way.
- The National Building Museum for teaching us how to make green buildings
- Tour guides from Sidewell School for showing us what things we can use to go green and save energy.
- Ms. Riggen for going green, helping people go green, starting this book, working really hard on it, and doing a lot in this expedition. Without her none of this would be possible.

Capital City Public Charter School

Green Building Expedition: Capital City's innovative learning expeditions allow us to teach content and skills through the lens of compelling topics so our students learn in the context of the community and the world in which they live. The Green Building expedition educated 7th and 8th grade students about energy, electricity, and natural resource consumption. Under the guidance of an interdisciplinary team of teachers (science, humanities, math, and art) fifty-two students learned about smart energy use and recycling, using project-based learning to bring required science curriculum and standards to life. Through partnerships with the Alliance to Save Energy and the U.S. Green Building Council, as well as input from a green building expert, Capital City's students explored the problem of overconsumption and developed solutions to illustrate their knowledge of energy-efficient, renewable energy alternatives. This seven-month expedition, culminated with student research, writing and production of the Green Building Book, which was presented to our Board of Trustees in June of 2011. The students' book includes energy efficiency recommendations for Capital City, which we will work to incorporate as we plan the renovation of our new building, to be occupied in the Fall of 2012. Student authors have met with architects, parents, and school leaders for "sustainability charrettes" to participate in the planning process for the new facility.

Mission: Capital City enables a diverse group of students to meet high expectations; develop creativity, critical thinking, and problem-solving skills; achieve deep understanding of complex subjects; and acquire a love of learning along with a strong sense of community and character. We will graduate young adults who are self-directed, intellectually engaged, and possess a commitment to personal and civic responsibility.

Approach: Capital City students complete a rigorous academic program that emphasizes both independent and collaborative learning within an inclusive democratic community. Many aspects of our school program can be directly linked to our success in closing the achievement gap, including our low student-teacher ratios, our approach to tailoring instruction to each individual learner, and our use of data to inform differentiated instruction. Our emphasis on social curriculum creates structures that build our students' capacity to be strong, independent workers and thinkers. Project-based learning around compelling topics, combined with integrated arts instruction, results in increased student engagement. Capital City's innovative approach to learning is a unique program based on nationally recognized educational models.

Student Body: Capital City serves grades Pre-K through 12. Our students come from nearly every zip code in the city and represent a broad range of ethnic and socioeconomic backgrounds.

www.ccpcs.org