

Schools for Today and Tomorrow

Bettye Myers Middle School

Taken November 1, 2012



Partners



Our Vision



- Our first thought was to teach students about sustainable features of the new middle school.
- We wanted to create a partnership to capitalize on this opportunity.
- What we discovered was a large variety of school curriculum paired well with the design and construction industry.
- We are working to develop near term and long term goals.

Our Near Term Goals



- Engage students in the construction process of the new middle school.
- Work with Denton ISD to locate and research educational materials related to industry topics.
- Provide Denton ISD with documentation of building features and processes for use.

Engage Students



- As a first step, we decided to provide students an opportunity to attend a construction meeting and be part of the process.
- Our first meeting featured four students from Stephens Elementary School: Mitchell, Haden, Nicole, and Sierra.
- Activities for the day included: attending the project meeting, a site tour, questions & answers and solving a math problem.

Tough Questions -- ???



Mitchell asked, "I've heard the school is going green, in what ways are you doing that?"

Sierra asked, "Is there any post-tension cable system in this building? If yes, what part do they serve?"



Tough Questions -- ???



Nicole asked, “How many floors will there be?”

Haden asked, “When will construction be over?”

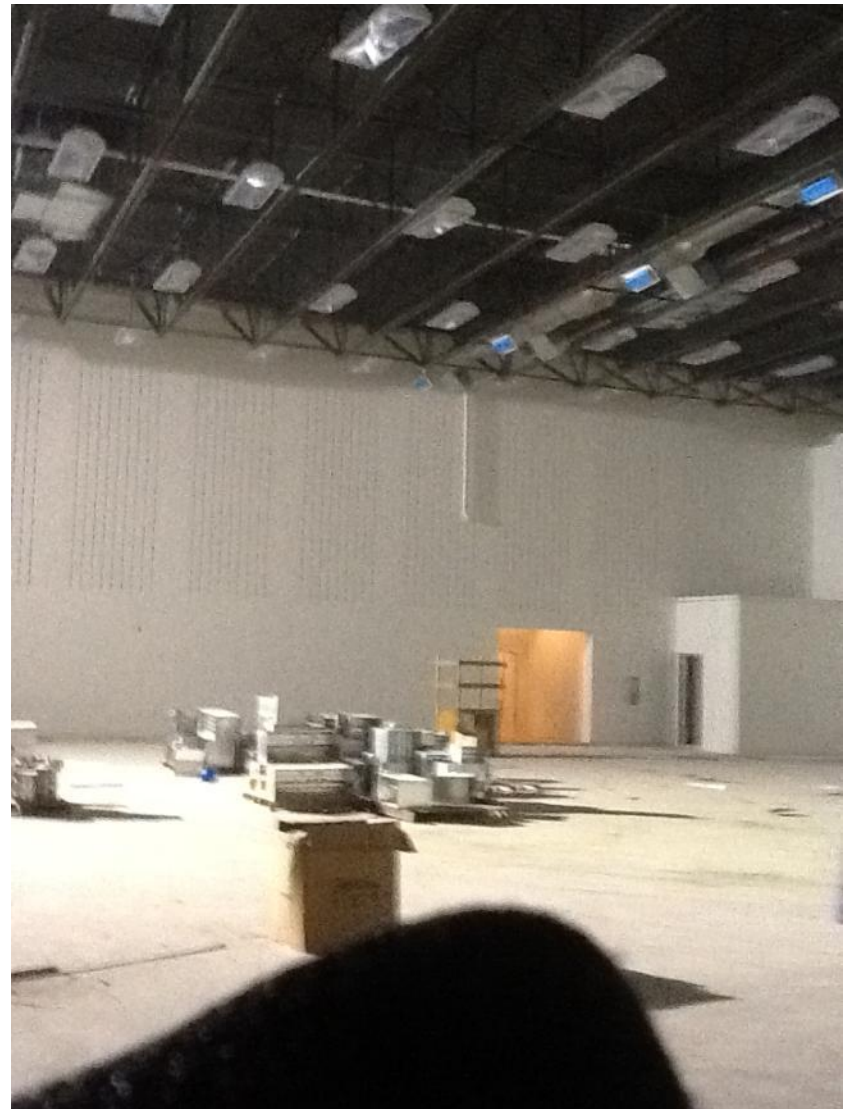


There was also a great deal of concern about lockers and storm shelters

Photos courtesy of Sierra, Nicole, Haden and Mitchell



Photos courtesy of Sierra, Nicole, Haden and Mitchell



On Tour



On Tour



Educational Resources

Many websites and other parties are currently providing curriculum enrichment material related to the construction industry and sustainability.

A few samples:

www.Projectwet.org

<http://www.rainforest-alliance.org>

www.usgbc.org

www.us.fsc.org



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Sample from a ProjectWET workbook

WHAT IS STORM WATER?

Storm water is water that falls from the sky as rain or snow. Wherever you live, whether it's a very wet or very arid climate, storm water occurs. When water falls to earth as rain or snow, most of it seeps into the ground. If the ground is **saturated**, frozen, or covered with **impermeable surfaces** like a concrete sidewalk or a paved parking lot, the water flows over the land, creating what's known as storm water runoff.

Maybe you've heard people say that rain washes the streets clean, but have you ever thought about where that water ends up? Storm water runoff can add needed water

to streams, lakes, and wetlands, but it can also cause flooding, erosion, and pollution problems. Storm water by itself is necessary and good, but when it passes through urban areas like cities or towns it can pick up pollution, and this can become a big problem.

Storm water **discharges** are generated by runoff from land and impermeable areas such as paved streets, parking lots, and building rooftops during rain and snowfall. These surfaces often contain **pollutants** that are picked up by the flow of storm water and can adversely affect the water quality.

A-MAZE-ING STORM WATER

Try this activity to see how storm water can travel. Cover a piece of cardboard with wax paper. Use clay to create a maze similar to city streets, parks, and streams. Add sponges to represent **permeable** areas, such as wetlands or soccer fields. Place a large drop of water at the start of your maze and tilt the cardboard until the water travels to the end. As it moves, you can have it travel through spots containing ingredients that represent pollution. How does the appearance of the water change? Would you want to swim in this water? How much water stayed in the sponges?

POLLUTION

- powdered cocoa = sediment or soil
- green food coloring = fertilizers
- candy sprinkles = pet waste
- paper clips = litter
- grass clippings = grass
- vegetable oil or soy sauce = oil & gas from cars
- salt = road salt

TRY THIS

Here is a math problem to show how storm water runs off different surfaces. Imagine a 3-hour rainstorm. Each hour, 1/2 inch of rain falls to the earth. On a soccer field, 60% of the rain soaks into the ground. On a parking lot, only 1% of the water soaks into the concrete. At the end of three hours, how much rain (in inches) has run off from both surfaces? Check the back for the answer.

Look for these corner boxes throughout this booklet. On one side you'll find Fascinating Facts about storm water, and on the other side you'll find questions to help you learn more about your nearest storm drain.



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Storm Water Dictionary:

- discharges:** releases of water into lakes, rivers, oceans, or soil
- impermeable surfaces:** surfaces that don't absorb water or let it pass through
- permeable:** allows water to soak in
- pollutant:** a material that harms the given use of the water
- runoff:** water that flows over the land after a rainstorm
- saturated:** to fill or soak something completely

In AD 47, the Romans brought their skill of water collection to England and helped build drains all over the country.

How far apart are the grates on your neighborhood storm drain? Observe carefully and write the answer in here.

(Note: Some storm drains have large openings. Always use care, and NEVER reach any body parts into a storm drain. Stay on the sidewalk, wear bright colors, and go with a buddy.)



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Hands-on, multidisciplinary
preK-8th grade curricula

School Curriculum

The Rainforest Alliance Learning Site offers curricula and resources to help students understand how rainforests contribute to our collective well-being. This program teaches **science, math, language arts** and **social studies** essentials while addressing the National Standards for Learning. The multidisciplinary curricula present information on forests, wildlife and local communities. It provides a global perspective on the importance of protecting the world's natural resources and gives students opportunities for direct action. All of these resources are easy to download or view on screen and are provided free of charge.

On these pages you will find:

Complete lesson plans that meet National Standards for Learning designed for students in kindergarten through eighth grade

Illustrated stories (available in English, Spanish and Portuguese)

Presentations

Articles

Posters

Profiles of rainforest species

Information about on-the-ground conservation projects



We invite you to join us in educating our children about the importance of rainforests, and in advocating for their survival. Join us in ensuring that today's children -- and their children -- will be able to hear the raucous call of the scarlet macaw, to witness the brilliant

blue flash of a morpho butterfly and to understand how people everywhere can benefit from the wealth of forest resources without destroying them.

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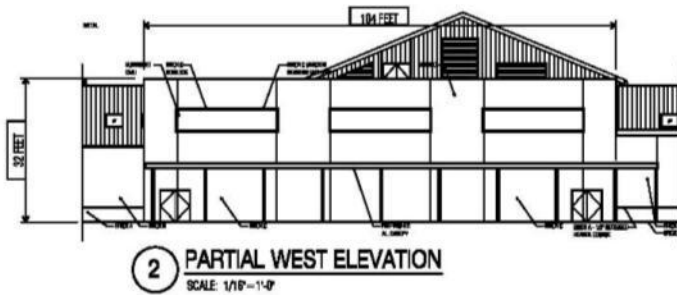
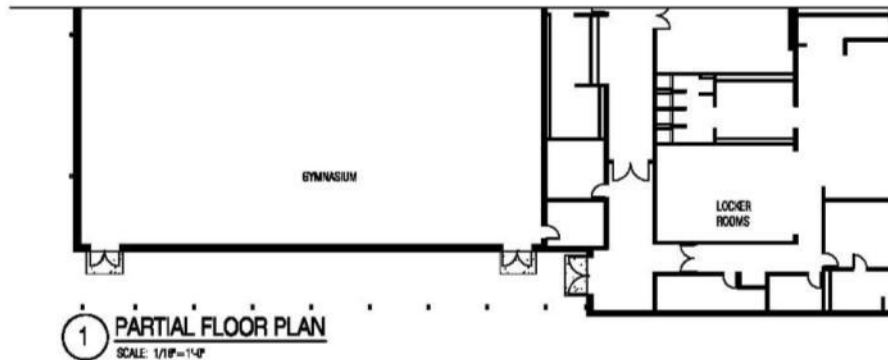


Rainforests: There's an App for That!

How much do you know about survival in the rainforest? Try our new app to find out. [Download the app »](#)

See the *Rainforest Survival Challenge* in action. [Watch video »](#)

How many bricks are in that wall?



THE AREA OF THE WEST WALL OF THE GYM IS 32 FEET TALL X 104 FEET LONG = _____ SQUARE FEET

THERE ARE 7 BRICKS PER SQUARE FOOT OF WALL.

HOW MANY BRICKS ARE ON THIS WALL?

_____ SQUARE FEET OF WALL X 7 BRICKS PER SQUARE FOOT = _____ TOTAL BRICKS

Answers:

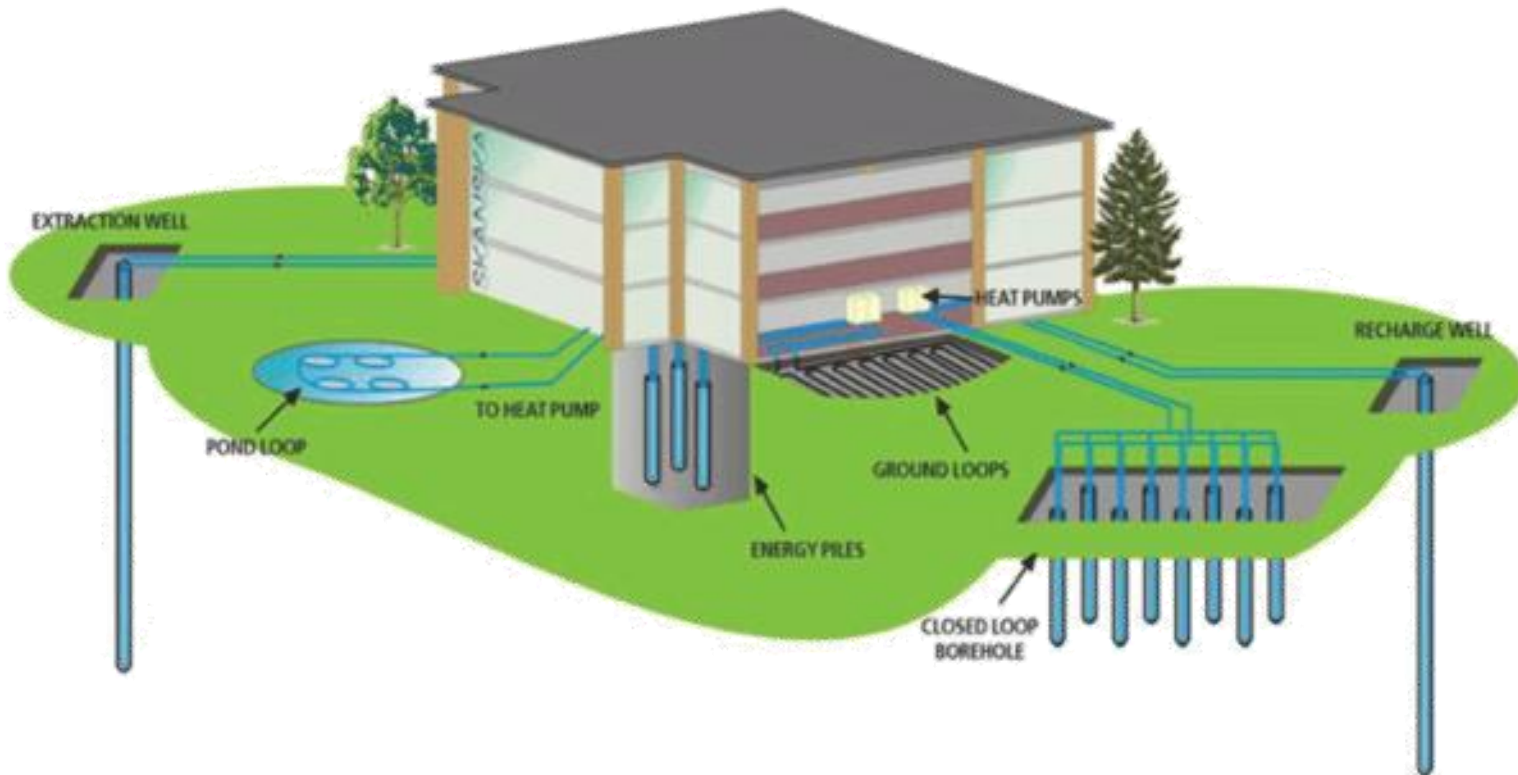
- 3,328 Square Feet
- 23,296 Bricks

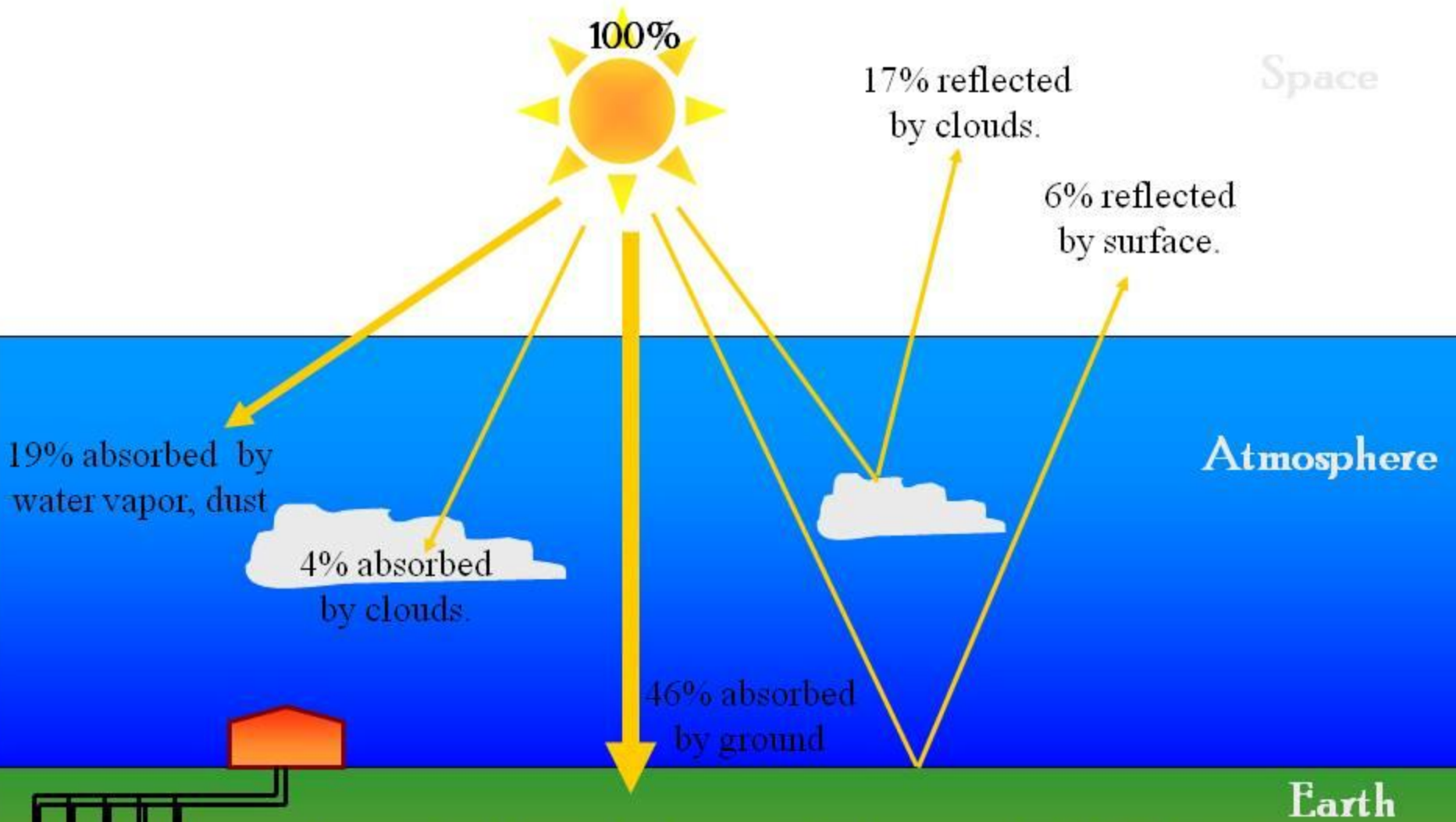


- 5th Grade Math includes multiplication and measurement

Energy Transfer and the Geothermal HVAC System

- TEKS 6A: explore the use of energy including mechanical, light, thermal, electrical and sound





The earth is like a solar battery absorbing nearly half of the sun's energy. The ground stays a relatively constant temperature through the seasons, providing a warm source in winter & a cool heat sink in summer.

Geothermal Systems ~ Introduction & Overview