



Team STEM

Lake Hills STEM Magnet School Staff

Michigan City Area Schools

History of Lake Hills **STEM** Magnet Elementary School

Science, Technology, Engineering, Math



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- **In January, 2008** Lake Hills Elementary School opened its doors as a brand-new school in Michigan City. Students and staff from the former Mullen School (opened in 1969 as an open concept building) moved across the playground to this new facility.
- **Dr. Barbara Eason-Watkins** became superintendent of the Michigan City Area Schools in the fall of 2010. As she took over, she realized that Lake Hills was one of the newest buildings in the district but was not operating at full enrollment capacity because of the number of students in its geographical boundaries. She brainstormed ideas with the principal, staff, and community members and was given approval by the MCAS school board in the spring of 2011 to turn Lake Hills into a STEM Magnet School.
- **US Secretary of Education, Arne Duncan** visited Lake Hills in the spring of 2011 and encouraged the staff to develop a rigorous STEM curriculum in order to prepare students to become future problem solvers and innovators. He also suggested getting the community involved as much as possible in our journey of becoming an exemplary STEM school
- **Grade level teams** received professional development to develop a STEM curriculum during the spring and summer of 2011. Integration of all of the disciplines was a priority using the IN State Standards and the Common Core Standards as the foundation. Big ideas PK-5 staff decided to incorporate into their STEM curriculum were: 1) Twenty First Century Skills (Critical Thinking, Creativity, Collaboration, and Communication), 2) Multiple Intelligences, 3) Bloom's Taxonomy, and 4) the Engineering Design Process.
- **Open enrollment** (Spring 2011) was offered to students in grades 1-4. A waiting list was created when classes were filled.
- **In the fall of 2011**, Lake Hills Elementary School opened as a STEM Magnet School with a population of about 525 PK-5 students. 83% of the students are enrolled in the free and reduced lunch program.

STEM Implementation at Lake Hills

Lake Hills STEM Magnet School staff are committed to developing a world-class STEM Elementary School.

To determine how many other STEM Elementary Schools there are in Indiana, Betsy Kohn, MCAS Director of Communications talked to Zach Foughty, IN Department of Education who said, "They don't officially collect information from districts about a STEM focus, but to his knowledge, there are only five elementary STEM Schools in Indiana. Three are charter schools near Indianapolis and one is Warsaw STEM Academy in Kosciusko County. He doesn't believe it is a magnet school however. He believes that Lake Hills is certainly the only one in our region and is likely the only non-charter public elementary STEM Magnet in the state."

Community support is an important piece of our STEM curriculum.

- **Speakers** from a variety of organizations worked with students at Lake Hills STEM Magnet School. These on-site field experiences with community experts enriched and extended PK-5 students learning on the topic being studied in the classroom.
- **Study trips** to places in the community provided students with hands-on experiences of observing STEM in the real-world. Community friends shared how they use STEM in their jobs, fees have been waived in some cases, and family members who accompany their children extend their knowledge of the community in which they live.
- **Purdue North Central** educators provided curriculum support (development of web quests, STEM Lab ideas, lessons plans, resources).
- **Quarterly STEM Celebrations of Learning** allowed students to showcase their problem-based learning projects with their family members and community members.
- **STEM After School Clubs** manned by volunteers (retired teachers, parents/grandparents, Purdue North Central students, community organizations) provided K-5 students with opportunities to choose areas of interest to extend their learning after the regular school day.
- **Donations** of building supplies, plants, and garden tools from local businesses helped students and staff develop outdoor learning labs on-site.

Students in grades PK-5 work in the STEM Lab each week.

- **Two STEM labs** (primary and intermediate) were designed and developed in open classroom spaces through collaboration with Purdue North Central staff and Lake Hills staff.
- **A science teacher** coordinated and facilitated problem-based learning activities weekly with grade level teams.
 - Students worked on **skills** such as note-taking, risk-taking, higher order thinking, communication and collaboration.
 - Students built **authentic products** with a variety of materials and tools to provide insights into the design process.

All Lake Hills staff embrace the concept that they are change makers in the field of education.

- During the spring of 2011, current Lake Hills staff were given the option to move to another building. All staff decided to stay and made a three year commitment to develop a STEM Magnet School.
- Many of the staff are seasoned teachers who went beyond their comfort level to develop a STEM curriculum that will help prepare Lake Hills students for the Twenty First Century.
- Integration of Digital Age Literacy skills (reading critically, solving complex problems in mathematics and science) are being woven into the Lake Hills STEM curriculum.

Students, families and the community benefit from Lake Hills becoming a STEM Magnet School.

- **Our students** (83% poverty rate) are naturally bodily-kinesthetic learners (Eric Jensen). Lake Hills' STEM curriculum provides students with multiple opportunities to "learn by doing" which helps them build background knowledge and vocabulary.
- **Our families** feel empowered because they can choose to send their children to a new kind of innovative school in Michigan City. At home projects have encouraged the whole family to become problem solvers. Family involvement has increased dramatically with volunteers working in the classrooms, as well as attendance at school-wide and grade-level events.
- **Our community** has become stakeholders in helping to educate our students. They have been very supportive in bringing their talents and skills to Lake Hills to share with our students and opening their doors for us to visit.

Accomplishments and Special Recognition



Lake Hills STEM Magnet School Footsteps to Lake Michigan

One of the 10 Elementary Schools in the nation to receive a \$10,000 grant from Vernier Software and Technology

Chicago Wilderness grant winner to encourage families to "Leave No Child Inside". Using this grant, we took a family study trip to IN Dunes National Lakeshore's 30th anniversary in July.



A Great Lakes Earth Partnership School!

This project engaged students, staff, and community partners in helping restore native habitats on school property. At the entrance of Lake Hills a rain garden was created to teach and practice a variety of STEM concepts.



"Experiment with Science, Not Drugs!"
Red Ribbon Week-District "Theme" Winner

School Awards 2012-13

- MAGNA Award**- Lake Hills STEM Magnet School was included in a "best practices" database maintained by the American School Board Journal. Lake Hills was one of only 81 highly-scored programs selected for inclusion in the database this year, from among hundreds of applications reviewed by the National School Boards Association.
- Lake Hills STEM Magnet School Staff was inducted into the **8th Annual Society of Innovators of Northwest Indiana** and received a Team Award (The award was given to Lake Hills STEM Magnet School staff for being innovators in the field of STEM education)
- Principal Connie Bachmann** was selected as the March, Innovator of Northwest Indiana.
- Planting STEM Seeds Through Simulation** (Michigan City Enrichment Corporation Grant) to provide a stream of programs at the Challenger Learning Center of Northwest IN that will expose students to real-life applications in the STEM fields.
- Unity Foundation of LaPorte County Grant:** Tuholski and Oberlie Environment and Arts Fund for Youth
This grant brought the Banana Slug String Band to Lake Hills for a live performance of their environment-based songs. Niemann Elementary School was invited to join us.
- Lake Hills was the first-runner up in the **Indiana Science Bowl** (yellow division) competition.
- Lake Hills was selected as one of just 44 schools in the nation to pilot the newest STEM program for students in grades K-5. This elementary STEM program is designed and developed by **Project Lead the Way (PLTW)**. This program will be implemented during the 2013-14 school year.
- Indiana Superintendent of Public Instruction, Glenna Ritz** toured Lake Hills STEM Magnet School in May.

Awards Received by Lake Hills STEM Magnet School Staff

2011-2012

Michigan City Education Foundation Grants

- Shannon Chavis, 1st grade teacher: Earthworm project
- Erin Lozano, 2nd grade teacher : Life Cycles project
- Leanne Rogers, 2nd grade teacher: Life Cycles project
- Janis Mitchell, 5th grade teacher: Buddy Builders
- Dena Roths, 1st grade teacher: Buddy Builders
- Deanna Munoz, 5th grade teacher: Fish Frenzy: Creating a STEM Environment
- Leanne Lamport, 5th grade teacher: Fish Frenzy: Creating a STEM Environment

Donors Choice Awards

- Erin Lozano, 2nd grade teacher: subscription to "Time for Kids"
- Shannon Chavis, 1st grade teacher: non-fiction books, bean bag chairs

Tower of Excellence Student Educational Support Grants

- Allen Boone, science teacher: K-Nex Bridge Building Project
- Janis Mitchell, 5th grade teacher: Pollinator Problem-Based Learning Project for Summer School
- Dena Roths, 1st grade teacher: Pollinator Problem-Based Learning Project for Summer School

Laura Bush Award

- Mary Gish, librarian: non-fiction text to support a variety of STEM topics

2012-2013

Michigan City Education Foundation Grants

- Fourth Grade Team - Erin Lozano, Kathy Kelly, Michelle Haas Milligan - Blank books for student created stories
- Kindergarten Team- Literacy materials for word building

NIPSCO Energy Efficiency Grant

- Fifth Grade Team- Janis Mitchell, DeAnna Munoz

- Presenter at National Council of Mathematics in Colorado for CARE Math program - Janis Mitchell, 5th Grade Teacher

Indiana Science Bowl - Yellow Division (4th Grade)

School Name	City	Regular Score	TB1	TB2	TB3	State Place
Eagle Elementary School	Zionsville	59	1	1	2	State Champion
Lake Hills STEM Magnet School	Michigan City	48	0	0	6	State Runner-Up
Lantern Road Elementary School	Fishers	46.5	0	1	5	State Third Place
Fall Creek Elementary School	Fishers	42.5	0	1	3	
Charles Elementary School	Richmond	32.5	0	0	3	

Indiana Math Bowl - Yellow Division (4th Grade)



Donations to Lake Hills STEM Magnet School

- Dage-MTI - money to be used for technology
- Mayor Oberlie - donation to help bring the WG Jackson to Michigan City
- Jean and John Coulter- pumpkins for first STEM Celebration
- Pioneer Lumber - lumber for benches
- Jeff Bildhauser, Lowes - garden shed materials
- Herb Higgins, Safe Harbor Nurturing Minds- money for garden shed
- Darren Westphal family- labor to build garden shed
- Kabelin Hardware- 2 garden hoses
- Von Tobel Lumber and Hardware- materials for first grade squirrel nesting boxes
- Save the Dunes- garden seeds
- Vincini Farms, Eau Claire, MI- garden plants
- Mark's Family Farms, Michigan City - garden plants
- Norma Jones, LaPorte- garden plants
- Sevick Gardens, Three Oaks, MI- garden plants
- Martin Mulson, Benton Harbor, MI- garden plants/seeds
- Ed Burek Farms, LaPorte- garden plants
- Richey Gardens, LaPorte - garden plants
- Pat St. Pierre, Michigan City- garden plants
- Dr. Jan Radford, MCAS - stumps for outdoor learning seating area
- Pennie and Lloyd Lombard, Audubon Society- hardware and posts for bird houses, assistance in installing them
- Marty Post, Lakeshore Landscaping- assistance in planting rain garden plants and bi-weekly watering
- Frank Seiheimer, Michigan City Forrester- 3 trees planted by STEM Club members
- Bill Pool- lumber and labor to build birdhouses with STEM Club members
- Beachside Gardens - garden plants
- Big R- 20 buckets
- Burnham Glove Company - garden gloves

Purdue
North
Central
Partnership

July 22- Several members of the PNC team visited to tour our proposed STEM Labs. Ideas for equipment and suggestions were provided.

July 28 – Planning meeting with Lake Hills staff and PNC team. Topic: “What can PNC do for Lake Hills? What can Lake Hills do for PNC?”

Purna Das, PhD,
Professor of Physics
and Department Chair
provided us with
samples of Physics
21300 lesson plans
and recommended
web-sites to use.

Purdue North Central and Lake Hills STEM Magnet School Partnership

Kenneth (Chris) Holford, PhD is the PNC liaison that works with our staff.

- He attended our October PLC meeting.
- Supplied mealworms for preschool
- His team brought a skeleton and some duck mounts for us to examine.
- Gave STEM coordinator a tour of PNC’s science department and offered advice on ordering materials for our Vernier grant.

Debra Pratt. Block Five Education Class Professor, had her students participate in two rotations of STEM after School Clubs as part of their service learning project. Eighteen students majoring in education created and facilitated projects for Lake Hills students in grades K-5 during the spring semester.

Dr. Keith Schwingendorf, Dean of Science led a team from PNC and attended our first STEM Celebration of Learning. Representatives from the faculty were in attendance at all four STEM celebrations of learning.

Vanessa Quinn, PhD, provided a science autobiography for our staff to complete at the beginning of the year. She is tracking how the staff’s attitude about teaching science develops over time.

Amy Hamann’s EDC1 36500 science methods class created activities related to Life Science and Earth/Space Science topics. They shared these hands-on activities in person with families during our first and third STEM Celebrations of Learning.



Jessica Thomas, PhD, brought four teams of students that represented the CHM 214 class to our December PLC meeting to share lessons they created for the Lake Hills staff to use with their students.

Erin White’s EDI 272 class designed and developed web-quests that address STEM standards and topics for grades 2 -5.

Fourteen 4th and 5th graders were invited to visit PNC to hear a presentation, “LIGO Collaboration- the search of gravitational waves and the Einstein Theory” on November 22, 2011. Jonathan Myers, president of the astronomy club set up the study trip and came to Lake Hills before the program to give students some background knowledge about the LIGO Collaboration. **Aaron Warren**, PhD answered questions prior to the presentation. Dr. Warren also visited Lake Hills and conducted two working lunches with the group to extend their thinking about astronomy. In April all fifth graders visited PNC to hear Dr. Warren speak about the latest information related to the study of astronomy.

Purdue North Central and Lake Hills STEM Magnet School Partnership

(continued)

- Dr. Purna Das and his associate came to Lake Hills multiple times to present lessons on motion to the three fourth grade classes.
- Annette Tomory, helped develop STEM curriculum and shared 4th grade lessons (Life Science) using crayfish to model the concept of adaptations.
- Third graders visited the PNC campus to learn about Life Science (plants) concepts. They visited two science labs and worked with Dr. Vanessa Quinn and Dr. Jason Curtis. Mrs. Judy Jacobi gave the third graders a tour of the campus to help students become aware of possible college and careers available to them in the STEM fields.
- Dr. Aaron Warren facilitated a 4th-5th grade Lunch and Learn Astronomy Club. He visited Lake Hills multiple times and shared many web-sites that students could use at home with their families.
- Faculty continues to show their support by attending quarterly STEM Celebrations of Learning, providing resources and ideas.
- A Purdue North Central Round Table Discussion hosted by Lake Hill was attended by Chancellor Dworkian, MCAS Superintendent Barbara Eason-Watkins, PNC faculty, Lake Hills Staff, and Barker Staff.- to bring Barker STEM Middle School on board (Dr. Watkins, Chancellor Dworkian)

Purdue North Central Partners

1. **Chancellor James Dworkian**, attended round table discussion at Lake Hills with Barker Middle School to extend PNC partnership into STEM Curriculum at the middle school level ++
2. **Karen Schmid**, Vice Chancellor for Academic Affairs - attended STEM Supporter luncheon
3. **Dr. Rex Morrow**, Dean of College of Liberal Arts - attended multiple planning meetings and STEM Celebrations of Learning, ++
4. **Dr. Keith Schwingendorf**, Dean of College of Science - attended multiple planning meetings, STEM Supporter luncheon, and STEM Celebrations of Learning, ++
5. * **Dr. Kenneth (Chris) Holford**, Associate Professor of Biology, Dept. Chair - attended multiple planning meetings, STEM Celebration of Learning, PLC meeting, materials support, ++
6. **Dr. Kham Chi Chan**, Interim Chair for Education - attended STEM Supporter luncheon, ++
7. **Dr. Jackie Covault**, Assistant Professor of Literacy Education - STEM Coordinator spoke to Corrective Reading class when they were on-site
8. **Dr. Purna Das**, Dept. Chair and Professor of Physics - attended multiple planning meetings, STEM Celebrations of Learning, provided physics lessons plans, came to Lake Hills multiple times and worked with 4th grade classes on concepts of motion, ++
9. **Mary Jane Eisenhauer, Ed.D.**, Assistant Professor of Education - attended multiple planning meetings and STEM Supporter Luncheon, her students worked with first graders on research
10. **Dr. David Feikes**, Professor of Mathematics - conducted professional development on the CARE Math program for fourth and fifth grade teachers
11. **Amy Hamann**, Limited Term Lecturer Science Methods - students from her science methods class created hands-on activities and shared them with families at first and third STEM Celebrations of Learning
12. **Dr. Vanessa Quinn**, Assistant Professor of Biology - doing a study on the comfort level of our staff when teaching science and if it changes over time, facilitated life science lessons for our third grade classes when they visited science labs at PNC
13. **Debra Pratt**, Continuing Lecturer of Education - students in her Block Five education class created lessons and facilitated activities during multiple rotations of STEM after School, attended multiple planning meetings, STEM Celebration of Learning, and STEM Supporter luncheon, her students worked with first graders on research
14. **Dr. David Pratt**, Associate Professor of Education - provided technical support to Erin White's students when they created web quests for our use
15. **Chris Smith**, Associate Professor of Electrical and Computer - attended a STEM Celebration of Learning
16. **Dr. Jessica Thomas**, Assistant Professor of Chemistry - attended multiple planning meetings, STEM Celebrations of Learning, STEM Supporter luncheon and had her Chemistry students prepare and share lessons with our staff
17. **Annette Tomory**, Continuing Lecturer of Chemistry - provided ideas for grade level curriculum, presented multiple Life Science Lessons to 4th grade classes
18. **Dr. Alain Togbe**, Professor of Mathematics - attended STEM Supporter luncheon, helped facilitate a math group during STEM after School.
19. **Dr. Aaron Warren**, Associate Professor of Physics - attended multiple planning meetings, facilitated two visits to PNC for students to learn about astronomy, facilitated a group of students on-site to conduct working lunches to extend their knowledge of astronomy
20. **Erin White**, Coordinator of Learning and Technology - her students created web quests based on grade level science topics for our student's use.
21. **Dr. Glynn Bricker**, Assistant Professor of Physics- attended planning session, offered to do physical science lessons for classes at Lake Hills.
22. **Dr. Jason Curtis**, Assistant Professor of Biology- facilitated life science lessons for our third grade classes when they visited the science labs at PNC.
23. **Judy Jacobi**, community relations - facilitated tour of PNC campus for our third grade students (college and career awareness)

* our PNC liaison

++ attended round table discussion at Lake Hills with Barker Middle School to extend PNC partnership into STEM Curriculum at the middle school level

STEM Curriculum

Ivy Tech Partnership

Dr. David Merrill and staff hosted fifth graders for a "Scientist for a Day" program held on the Ivy Tech campus. Students participated in a number of activities to help them practice and learn a variety of science concepts.



Lake Hills Hosts a Community Bird Festival on a Saturday Morning in October

Bird Hikes, Bird House Building, Crafts, Observing and Touching Real Birds, Learning about Birds

Community groups that facilitated activities for the more than 150 participants were:

- Boy Scout District Director Carpenter and several Michigan City Cub Scout Packs
- 4-H Pigeon Club
- 4-H Poultry Club
- Izaak Walton League (LaPorte County)
- Izaak Walton League (Porter County)
- IN Dunes National Lakeshore
- St. Joe County Park Department
- Friends of the IN Dunes
- Potawatomi Audubon Society
- Brandt's Emporium
- Sandra Wilmore- Bird Bander
- Wendy Smith - Environmentalist
- Lubeznik Center for the Arts

Donations were provided by:

- Pioneer Lumber
- Jasper Pulaski Wildlife Preserve



Dudek's Tree Farm



Erin Crofton, Save the Dunes



Kristy Gerlach, IN Dunes National Lakeshore



Kip Walton, IN Dunes National Lakeshore



Katie Rizer, Porter Co. Parks



Nicole Messacar, La Porte County Soil and Water Conservation



Niki Schmutte, La Porte County Park Department



Alicia Ebaugh, La Porte County Solid Waste District

STEM Curriculum Supporters

- On-site field experiences with community experts
- Study Trips
- Hands-on discovery activities



Tom, Mixsawabah Fish Hatchery



Garwood's Orchard



Amber Horbovetz, Save the Dunes



La Porte Co. Farm Bureau "Farming in the Classroom"



Jeffrey Hendricks, IN Dunes National Lakeshore



Jim Kintzele, Michigan City
Water Department



Lake County Extension Office



Laurie Cates, Michiana
Humane Society



Kindergarten
Family
Saturday
Study Trip



Fair Oaks
Dairy Farm



STEAM- Putting the "A"(arts) in STEM.
Provided by La Porte Co Symphony

STEM Curriculum Supporters



IN Dunes National Lakeshore - early history of
our region (Native Americans/Fur Traders)



We're wondering what's the
next topic we'll study?



Hoosier Bat Company



LaPorte County EMS



Mayor Ron Meer



Michigan City Fire Department

STEM Curriculum Supporters



LaPorte Co. Parks – Luhr Park



MCAS Transportation Dept.



Michigan City Police Department

STEM Curriculum Community Partners

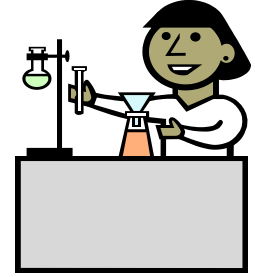
Quarter One: Life Science

- Erin Crofton and Amber Hobovetz - Save the Dunes
- Alicia Ebaugh - LaPorte County Solid Waste District
- Christine Dittmar - Cardno JF New
- Brian Breidert and Randy Brindza, - DNR Fisheries Division
- Ranger Julianne Larsen, - IN Dunes National Lakeshore
- Janet Bloch, Olga Shturmina Welch, Esther Gunchon - Lubeznik Art Center
- Northwest IN Paddling Club (kayaks)
- Rob and Tom - Mixsawabah Fish Hatchery
- Officer Alvin O'Brien, Officer Rapp, Officer Bennett- US Coast Guard
- Eric Neague, Weaver Bos Consultants
- Nature Niki and Ranger Laura- LaPorte Co. Park Department
- Fair Oaks Dairy Farm
- Wagner's Farm
- Garwood's Orchard
- Ranger Kip Walton- IN Dunes National Lakeshore (on-site first grade programming)
- Ranger Jeffery Hendricks - IN Dunes National Lakeshore (grades 2-5)
- Rangers Julie Larson and Christy Gerlach- IN Dunes National Lakeshore (Kemil Beach, Douglas Center)
- Laura Shields- Old Lighthouse Museum
- Jim Kintzle - Michigan City Water Department
- Laurie Cates - Humane Society
- Nicole Messacar and Ethyl Turkowski - Soil and Water Conservation District
- Lake County Extension Service
- International Friendship Gardens (STEM night)
- Audubon Society (STEM night)
- Dr. Tom Troxel's Dairy Farm
- Purdue North Central Pre-Vet Club
- LaPorte County Farm Bureau - farming in the classroom
- Orkin Pest Control- Brian Menke
- Porter County Park Department Naturalists
- Nancy Barnes - International Friendship Gardens and Master Gardener
- LaPorte County Fair - Pioneerland
- Annette Tomory- Purdue North Central professor
- Jackie Thompson, 4-H Poultry Club (STEM night)



Quarter Two: Physical Science

- Katy Rizer- Porter County Park Department
- Tom, DNR - fish release into Trail Creek
- Mr. Jim and wife - Porter County Park Department
- Jim Kintzle and Greg Burnett - Michigan City Water Department
- Rangers Christy Gerlach and Julianne Larsen - IN Dunes National Lakeshore (Bailey Homestead, Chellberg Farm)
- Dudek's Tree Farm
- Erin Crofton and Amber Hobovetz - Save the Dunes
- Ranger Kip Walton - IN Dunes National Lakeshore
- Nicole Messacar and Ethyl Turkowski - Soil and Water Conservation District (fur traders, ecosystems, water cycle)
- NIPSCO Energy Efficiency program
- Porter County Park Department Naturalists
- Jude Rakowski - retired ranger from IN Dunes National Lakeshore
- Naturalist Brad Bamgarden - IN Dunes State Park
- Janet Bloch and Amanda Joyner - Lubeznik Center for the Arts
- Old Lighthouse Museum
- Buzz Ingram- NIPSCO Electrical Safety Village
- Abraham Fritz- Electricity
- Jena Stroud (Professor Popcorn) - LaPorte County Extension Service
- Barker Mansion



Quarter Three: Engineering and Technology

- Hoosier Bat Company
- Donna McClay and staff- LaPorte County EMS
- Shirley Sjoberg - St. Anthony's Hospital
- South Bend Chocolate Factory
- Brad Bumgarten - Indiana Dunes State Park
- Healthworks Kids Museum
- Pennie Lombard and Joan Wisniewski - Potawatomi Audubon Society
- Sue Harrison, Val Skwiat and staff - MCAS Transportation Department
- Uresa Falls White - Michigan City Transit (The Wave)
- Mark Baker and three shift crews - Michigan City Fire Department
- Lori Richardson and staff - Michigan City Public Library
- Officer Yagelski and Officer Samuleson - Michigan City Police Dept.
- Jena Wolfe (Professor Popcorn) - LaPorte County Extension Service
- Erin Crofton and Amber Hobovetz - Save the Dunes
- Studebaker Museum
- Rob Strater- Michigan City Transit Department
- Abraham Fritz- electricity
- Dr. Purna Das, Purdue North Central Professor
- Mr. Fansom- Cook Nuclear Plant



Quarter Four: Earth and Space

- Mayor Meer and City Hall staff
- Police Chief Swistek
- Fire Chief Martin
- Ann Dahm - Chamber of Commerce
- Dr. Aaron Warren and PNC astronomy club - at PNC
- Letty Zepeda - Environmental Protection Agency
- Luhr Park- fifth grade field days
- Krueger Middle School Environmental Center
- Lois Tomaszewski and Drew White - Michigan City News-Dispatch
- Mrs. Kintzle - Barker Mansion
- Nicole Messacar - LaPorte County Soil and Water Conservation District
- Christy Gerlach and Julianne Larsen - IN Dunes National Lakeshore (bog)
- Jim Erdelac- Shirley Heinze Land Trust
- Corie Elliot - LaPorte County Master Gardeners
- Pennie Lombard - Potawatomi Audubon Society
- Officer Charlene Sander and staff - US Coast Guard
- Tim Frame - Michigan City Port Authority
- Northwest IN Paddlers Association
- DNR Fisheries Division - Brian Breidert and staff
- Lubeznik Center for the Arts
- Bruce Cummings - Entomologist
- Merriville Planetarium
- Jude Rokowski - International Friendship Gardens
- Erin Crofton - Save the Dunes
- Porter County Park Staff - Sunset Hills
- Krueger Middle School- Environmental Days
- IN Department of Environmental Management
- LaPorte County Historical Museum
- Alicia Ebaugh - LaPorte County Solid Waste
- Police Officer Chris Yagelski
- Rick Brown, MS4 Coordinator
- Harry Hoover - wind turbines
- Vicki Troxell - rocks
- Jan Edquist - Basic Aid Training (Red Cross)
- John Davies, Northwest IN Innovator's Society
- Cynthia Hedge CEO, Center for Creative Solutions
- Dr. Vanessa Quinn, Purdue North Central
- Dr. Jason Curtis, Purdue North Central
- Judy Jacobi, Purdue North Central
- Dr. David Merrill and staff, Ivy Tech



Literacy on the Bus



On the way to and from study trips students read books about the topic they will be learning about at their destination. This helps them build background knowledge and vocabulary.

All Aboard the W.G. Jackson Research Vessel



On September 8 and 9, fourth and fifth grade students did experiments aboard the W.G. Jackson research vessel to learn about the water quality of Trail Creek. They participated in a variety of other activities throughout this day-long Lake Michigan learning adventure.



The Department of Natural Resources shared how they do electro-fishing when they do research on aquatic life in Lake Michigan.



The Lubeznik Center for the Arts taught students the Japanese form of fish printing.



The Northwest IN Paddling Club instructed students on how to use a kayak.



A visit to the Old Lighthouse Museum helped students learn about the history of Michigan City and Lake Michigan.

Paddling along Trail Creek

(which flows directly into Lake Michigan)

Fourth graders participated in a variety of coastal awareness activities using Trail Creek and the area adjacent to it as a place-based learning lab. Participating community groups who facilitated this day long event were: LaPorte County Soil and Water Conservation District, IN Dunes National Lakeshore, Department of Natural Resources, Northwest IN Kayak Club and Wilderness Canoe Adventures.



Northwest IN Kayak Club
taught students water safety.



Wilderness Canoe Adventures
instructed students on canoe navigation



IN Dunes National Lakeshore
helped students learn why early settlers choose to locate to this area.



Department of Natural Resources
talked about things living in the lake and how we need to help take care of them.

Music teacher, Steve Chambers integrated STEM into the music curriculum.

"Go Galileo! A musical journey of discovery through scientists and inventors" (grades 3-5 winter music program)



Flute Construction: Fifth graders made flutes out of PVC pipes. They performed at the fourth quarter STEM Celebration of Learning and explained to the audience how they used a lot of math to make them.



STEM Supporter Luncheon

All volunteers were invited to join us for lunch in May. A wide variety of community friends attended (ie: former Mayor Oberlie, MCAS Superintendent Dr. Eason-Watkins, firemen, EMS workers, Purdue North Central Educators, parents, grandparents, STEM After School Club leaders) Students made thank you cards and Lake Hills STEM Supporter bags for each of the guests. Preschool and kindergarten students sang songs, while other students shared their thoughts on STEM After School clubs, STEM Lab experiences, Study Trips and Special Events.

Career Day Volunteers

Community friends came to Lake Hills in April to share their jobs with PK-5 students answering the question, "How do you use STEM in your job?" Each classroom had the opportunity to learn about three different jobs.

- Charles Nathan - Genesis Foundation
- Martha Garcia-Saenz - Purdue North Central Engineering Department
- Ron Gaston - Total Temple Fitness
- Orky and Chips - Michiana Clowns
- Ryan Jenkins - semi truck driver
- Ron Miller - WEFM Station Manager
- Jessica Ward - Michigan City Airport
- Angela Nelson - law student
- Kim Noe - Jazzercise
- Carolyn Saxton - Lubeznik Center
- Kim Kiner - attorney
- Kim Winland - Michigan City Animal Hospital
- Marvin McCoy - LaPorte County Sherriff's Office
- Uresa Falls White - Michigan City Transit
- Mark Baker - Michigan City Fire Department
- Dontae Dennis - US Navy
- Joey Getter - barber
- Marty Corley - Michigan City Police Department



Jr. Achievement Volunteers

Weekly lessons on living in our community were facilitated by volunteers from a variety of community leaders.

- Kristen Axtell
- Linda Pavlak
- Jennifer Cress Castillo
- Robin Kohn
- Monique Gillard
- Carolyn Newman
- Kim Pressley
- Debbie Bracken
- Alan Harvey
- Rich Meyers
- Belinda Gillem
- Stephanie Oberlie
- Mario Castillo
- Kat Kendall
- Julie Wozniak



Red Ribbon Week Volunteers

- Ameenah Pasha - LaPorte County Drug Free Partnership
- Vera Gaston - MCAS Safe Harbor





Visiting scientists, US Coast Guard Officers Rapp and Bennett met students at the bus, visited with them in the breakfast room, and shared information in classrooms about how their jobs are STEM related.



Ranger Juli from the IN Dunes National Lakeshore met students in the breakfast room and shared information in classrooms about animals that live around Lake Hills. She shared that she is a scientist who studies the natural world.



Lake Hills was represented at Washington Park Beach clean-ups in September and June.



The Student Council at Lake Hills STEM Magnet School:

- Leads the school-wide recycling program
- Rang bells for the Salvation Army
- Baked cookies to send to our troops overseas
- Helps on school projects
- Collected change for tornado victims in Henryville
- Collected money for Pennies for Patients

Lake Hills STEM Magnet School students, families, and staff designed a float which was in the MCAS homecoming parade to show their support of the WOLVES football team.



Fourth grade students thanked Mayor Oberlie for his support in helping them visit the W.G. Jackson. The mayor answered questions about "What does a mayor do all day?" during his visit.

Fourth Quarter Special Events



Fourth graders created Science Fair projects and shared them with other grade level students and their families.



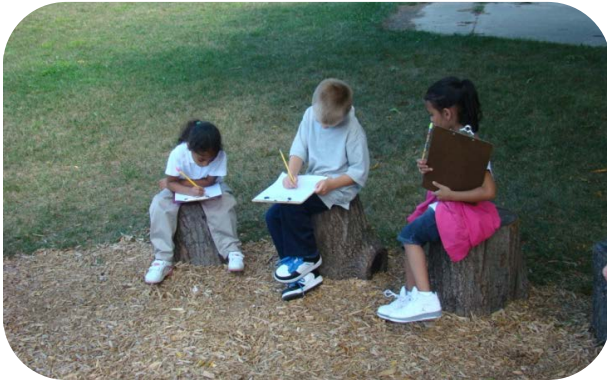
Kindergarteners learned about the day and night sky. All three classrooms had a camp-out in the gym. Many activities were facilitated by parent volunteers.



The Lake Hills climate committee held "Pancakes for Parents" before school on May 23. Families played board games after eating breakfast together.

Outdoor
Learning
Labs
and
STEM Trail
of
Knowledge

Lake Hills Outdoor Lab



Students conducted investigations on the plants living in Lake Hills' backyard and gardens.



La Porte County Master Gardeners helped students plant our first gardens at Lake Hills STEM Magnet School.



MCAS plant planning staff helped prepare various garden beds around the school. Thank you Mr. Williamson, Mr. Schroeder, and staff!



Science Standards focused on in the gardens:

- PK- Use five senses to discover
- K- Compare living plants
- 1st- Needs of plants for growth
- 2nd- Life cycle of plants
- 3rd- Common structures of plants
- 4th- Adaptations of plants to their environment
- 5th- Interactions of organisms within their environment



Safe Harbor Nurturing Minds and Lowe's Home Centers donated materials so we could construct a garden shed to house our tools. The Westphal family volunteered to help us build it near our garden area.

STEM Partners

Lake Hills STEM Magnet School and Barker Middle School



Dr. Morueh, Barker Middle School principal and Mrs. Bachmann direct students in planting flowers in front of Lake Hills STEM Magnet School.



Students place wood chips on the STEM Trail of Knowledge. STEM = Study Trails Enrich Minds
Learning stations will be developed during phase two along the trail.



Planting perennials in the parking lot with third graders



Planting veggies with first graders



Pulling weeds and general clean-up with the 4th grade

Additional partnership activities are planned for 2013-14.

STEM after School Clubs



Landscaping in the Boat



Crafts



Color Wheels



Stories



Nature Mobiles



Tanagram Math



Planting Trees

STEM after School Clubs



Wind Power



Making Edible Soil



Gingerbread Economics



Turning Soybeans
into Lip Balm

STEM After School Clubs

Facilitators: all Volunteers

Details: Registration forms with a brief synopsis about each of the clubs being offered for that rotation were sent home. Students indicated their first, second, and third choices. Confirmation letters indicating which club they were accepted to were sent home prior to the first meeting.

Procedures: Students stayed after school from 3:00-4:00 pm, were given a free snack when they entered the café, facilitators took attendance, then groups went to different areas of the school to work. All groups come back to the café for dismissal. Some students were picked up by family members, a few walked home, some went to SAFE Harbor, while others rode the activity bus provided by MCAS.

Rotation One- Focus “Life Sciences” (grades 1-5, once a week)

Meeting Dates: October 4, 11, 18 , 25

Number of Clubs: 8

Facilitators: 2 retired teachers, 2 Purdue Extension Educators- 4-H, PNC Astronomy club president, former art teacher, PNC education student, PNC nursing club students, Lake Hills instructional assistant, Elston Middle School student, Solid Waste Educator

Number of Students Enrolled: 100

Rotation Two- Focus “Physical Science” (grades 1-5, once a week)

Meeting Dates: November 29, December 6, 13

Number of Clubs: 7

Facilitators: 2 retired teachers, 2 Purdue Extension Educators (4-H), former LaPorte teacher, Solid Waste Educator, former Art teacher, PNC Education student, Lake Hills teaching assistant, MCAS Elston Middle School student

Number of Students Enrolled: 100

Rotation Three - Focus “Engineering and Technology” (grades K-5, twice a week)

Meeting Dates: Tuesdays- February 7, 14, 21,28 and Thursdays – February 9,16,23, March 1

Number of Clubs: Tuesday- 10, Thursday- 10

Facilitators: Tuesday- 2 Lake Hills instructional assistants, MCAS Elston Middle School student, Solid Waste Educator, 2 retired MCAS teachers, LaPorte Co. Soil and Water Educator, multiple parents and grandparents, Thursday:- 18 PNC Education Students, 2 retired teachers

Number of Students Enrolled: Tuesday- 120, Thursday- 110

Rotation Four- Focus “Earth and Space” (grades K-5, twice a week)

Meeting Dates: Tuesdays- April 17, 24, May 1 and Thursdays- April 12, 19,26

Number of Clubs: Tuesday- 8, Thursday- 11

Facilitators: Tuesday- multiple parents and grandparents, 2 retired teachers, LaPorte Co. Solid Waste Educator, PNC Astronomy Club president, MCAS National Honor Society member, Lubeznik Center for the Arts instructor, two Lake Hills teaching assistants, MCAS Elston Middle School student, PNC Math Club president and Math professor , Thursday- 18 students from Deb Pratt’s Block Five PNC Education Class, 2 retired teachers, LaPorte Co. Soil and Water Educator

Number of Students Enrolled: Tuesday- 120, Thursday- 115

STEM After School Club Volunteers

Students in grades K-5 selected which club they wanted to join from a list of offerings provided by the following volunteers four times during the year. Students met from 3:00-4:00 on Tuesday's and/or Thursdays. They were engaged in a variety of hands-on activities which helped enrich and extend their learning beyond the regular school day.

PNC Block Five Class

Professor Debra Pratt

As part of their coursework, PNC students agreed to volunteer to be STEM After School club leaders during the third and fourth quarters. They worked with a partner, offering nine different clubs each quarter.

- Kate Brenda
- Wes Bucher
- Jaclyn Smith-Cunningham
- Krista Carter
- Krissy Corrado
- Tony Douglas
- Jennifer Fase
- Bryanna Fravel
- Katherine Gregory
- Jenny Hyatt
- Chelsey Lardino
- Amanda Luna
- Brooke Menear
- Rebecca Marmo
- Micheal Prentiss
- Karoline Richie
- Ashley Salyer
- Courtney Tibbot



STAND - PNC Nursing Club

- Katie Ann Jacobs
- Donna

PNC Astronomy Club

- Jonathon Meyers

PNC Math Club

- Professor Alain Togbe
- Andrew Schoff

PNC Kappa Delta Pi president

- Jenny Hyatt

Lubeznik Center

- Paula Beuchley
- Amanda Joyner

Lake Hills Staff

- ** Marie Kaiser
- Marge Luther



STEM After School Volunteers

Parents/Grandparents

- Colleen Cabanaw
- Amanda Fowler
- Melissa Hardesty
- Rose Hardesty
- Pat Hillyard
- Ryan Kussart
- Bessie Shepherd
- Pat Williams
- Brianne Williams



Community Friends

- ** Alica Ebaugh— Solid Waste
- Nicole Messacar— Soil and Water
- Frank Seilheimer - Michigan City Forrester
- Patty Keating and Hugh Tonagel - Extension Service (4-H)
- Jude Rakowski- International Friendship Gardens



Retired Teachers

- ** Chris Baron- MCAS
- ** Peggy McAnally- MCAS
- Bill Pool- MCAS
- Penny Russell- MCAS
- Connie Shei- LaPorte



MCAS Honor Society

- Kayana Pryor
- Marque Steinhagen



Additional STEM After School Supporters

- Nancy Saxon
- Mark Russell
- Suzanne Kaiser- Elston Middle School student
- Marlise Rawls
- Carol Miller
- Kayla Wojick- MC High School student

STEM Lunch and Learn Clubs

STEM Lunch and Learn Clubs

Students were given the opportunity to join a STEM Lunch and Learn Club on a topic of their choice. Twice a month they ate their lunch while listening to a community expert.



Zoo Lunch and Learn Club

Docents and workers from the Michigan City Washington Park Zoo brought a variety of animals and spoke about the different kinds of people it takes to run the zoo. Zoo club members visited the zoo and made "bird sticks" as a service learning project to thank the zoo for helping them learn about our local zoo.



Veterinarian Lunch and Learn Club

Dr. Rex Bailey sent many different staff members to visit and share what they do at the Michigan City Animal Hospital. Veterinarian club members visited the Animal Hospital twice to see the various workers in action. Students learned about pet needs and care.



Community Workers Lunch and Learn Club

A police officer, two firemen, two animal control officers, and two members of the LaPorte County EMS shared information about their jobs. Presenters told club members how they use the areas of STEM in their jobs.



Astronomy Lunch and Learn Club

Dr. Aaron Warren, Purdue North Central Associate Professor of Physics facilitated the Astronomy Lunch and Learn Club. He introduced club members to many new web-sites to expand their learning at home with their families.

Quarterly
STEM
Celebrations
of
Learning

Quarterly STEM Celebrations of Learning

Purposes:

1. To allow students to showcase their work in their classrooms and STEM Labs about the topics they studied that quarter.
2. The Lake Hills parent group provided a light supper each time to encourage fellowship amongst all Lake Hills STEM caregivers and students.
3. Families participating in a variety of STEM hands- on activities in the gym (facilitated by community groups and Lake Hills staff) encouraged them to learn new things together and have fun.

Quarter One: Life Sciences

Date: October Time: 5:30 pm -7:30 pm

Approximate number in attendance: 500

Hands-on STEM Activities facilitated by:

1. LaPorte County Soil and Water Conservation District
2. LaPorte County Solid Waste
3. LaPorte County Purdue Extension Service (4-H)
4. International Friendship Gardens
5. Lubeznik Center for the Arts
6. LaPorte County Master Gardeners
7. Indiana Dunes National Lakeshore
8. Girl Scouts of Northern Indiana
9. Purdue North Central Science Methods Class (6 groups of students)

Special Activities:

- Lake Hills students performed a future scientists against drugs rap which kicked off red ribbon week, "We Experiment with Science, Not Drugs".
- Families were encouraged to bring a can a food to donate to the Salvation Army.



Quarter Two: Physical Sciences

Date: January Time: 5:30 pm -7:30 pm

Approximate Number in Attendance: 525

Hands-on STEM activities facilitated by: Lake Hills staff and former Lake Hills/Mullen students

Special Activities:

- "Getting Excited about Science" program - members of the audience became a human gyroscope, rode on a hovercraft, and assisted with a variety of science experiments
- Lake Hills parent group gave each student attending math flashcards to take home to practice.
- The Michigan City Public Library set up a table and encouraged library card registration and attendance at their programs.
- Families were encouraged to make foldable books to record their experiences as they celebrated STEM learning.
- Families played a variety of math games when they finished dinner.
- Lake Hills staff encouraged families to visit the book fair which was located in the school library.



Quarterly STEM Celebrations of Learning (continued)

Quarter Three: Engineering and Technology

Date: March Time: 5:30 pm -7:30 pm

Approximate Number in Attendance: 650

Hands-on STEM activities facilitated by:

1. Audubon Society
2. Solid Waste District
3. Lake Hills Staff
4. Former Lake Hills/Mullen Students
5. Purdue North Central Science Methods Class (7 groups of students)

Special Activities:

- Families were encouraged to work with other families at their table to construct a structure from gumdrops, marshmallows, popcorn, pipe cleaners and toothpicks when they finished dinner to practice the engineering design process.
- Preschool students performed songs and finger plays about the community at the end of the evening.
- Families were encouraged to bring some change to donate to the tornado victims in Henryville, IN "Help Make a "Change" for students at Henryville Elementary School".



Quarter Four: Earth and Space Science

Date: May Time: 5:30 pm -7:30 pm

Approximate Number in Attendance: 350

Hands-on STEM activities facilitated by: Lake Hills Staff

Special Activities:

- Local astronomer, Larry Silvestri brought his telescope to share with families.
- Families walked across the playground to Mullen School to observe the Michigan City Robotics team in action.
- Fifth grade students performed on the flutes they made in music class out of PVC pipes.

Fourth and fifth grade students gave an EWI demonstration.





Lake Hills Students



STEM Celebrations of Learning



Community Partners



Families



Purdue North Central Students



Lake Hills Staff



Student Projects



Investigations



Inquiry Based Learning



Inventions

STEM
Celebrations
of Learning



Look! A Human Gyroscope!



Sharing with Family

What People are Saying about Lake Hills STEM Magnet School!

"Lake Hills 3rd graders were the first group of students we have had down here at city hall since taking office..... we hope future groups and classes are as well behaved and polite as these young girls and boys were. Thanks again to all the teachers, chaperones, and students today for spending some time with us. We hope the students enjoyed it, because we sure did! If there is anything we can do to help you in the future, please feel free to contact us here in the Mayor's office and we will be more than happy to help you in any way we can."

Kalon Kubik, Administrator, Office of Michigan City
Mayor Meer

"Congratulations on a very successful first year."
Ron Miller, WEFM radio station general manager

"What is occurring at Lake Hills is awesome!"
Chuck (Charles Oberlie, former Michigan City Mayor)

We just visited a STEM school in Ohio who received a huge grant and has been a STEM school for a couple of years..... you have done more here at Lake Hills in your first year than they have done so far. We are glad we visited your school because we got lots of great ideas.

Blue School Staff
MSD Decatur Township, Indianapolis
10 staff members visited on May 18