University of Notre Dame
STEM Resource Guide

9th Annual
Collaborating for Education & Research Forum

Jordan Hall of Science
University of Notre Dame
January 23, 2016
<table>
<thead>
<tr>
<th>Page</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Advanced Diagnostics and Therapeutics Initiative (AD&amp;T)</td>
</tr>
<tr>
<td>3</td>
<td>American Chemical Society's Project SEED Program</td>
</tr>
<tr>
<td>4</td>
<td>Biocomplexity: Understanding Randomness in Biology</td>
</tr>
<tr>
<td>4</td>
<td>Bowman Creek Project</td>
</tr>
<tr>
<td>5</td>
<td>DNA Learning Center</td>
</tr>
<tr>
<td>6</td>
<td>Energy Research Experience for Teachers</td>
</tr>
<tr>
<td>6</td>
<td>Encouraging Technology and Hands On Science (ETHOS)</td>
</tr>
<tr>
<td>7</td>
<td>Expanding Your Horizons (EYH)</td>
</tr>
<tr>
<td>8</td>
<td>Harper Cancer Research Institute (HCRI)</td>
</tr>
<tr>
<td>9</td>
<td>Innovative Thinkers Camp (InC)</td>
</tr>
<tr>
<td>10</td>
<td>Joint Institute of Nuclear Astrophysics: Art 2 Science and Science 2 Theater Camps</td>
</tr>
<tr>
<td>11</td>
<td>Joint Institute of Nuclear Astrophysics: Physics of Atomic Nuclei (PAN)</td>
</tr>
<tr>
<td>11</td>
<td>Living Worlds Space Art Contest</td>
</tr>
<tr>
<td>12</td>
<td>Michiana Astronomical Society</td>
</tr>
<tr>
<td>13</td>
<td>Michiana Science and Technology Center, inc. (MSTCi)</td>
</tr>
<tr>
<td>14</td>
<td>National Robotics Week</td>
</tr>
<tr>
<td>15</td>
<td>ND LIGHTS (Laboratory Instrumentation (Giving Hope to Students)</td>
</tr>
<tr>
<td>16</td>
<td>Northern Indiana Regional Science and Engineering Fair (NIRSEF)</td>
</tr>
<tr>
<td>16</td>
<td>Northern Indiana Science, Math and Engineering Collaboration (NISMEC)</td>
</tr>
<tr>
<td>17</td>
<td>Notre Dame Linked Experimental Ecosystem Facility (ND-LEEF)</td>
</tr>
<tr>
<td>18</td>
<td>Notre Dame QuarkNet Center</td>
</tr>
<tr>
<td>19</td>
<td>Notre Dame QuarkNet Center: International Masterclass</td>
</tr>
<tr>
<td>20</td>
<td>Notre Dame TRiO Programs: Talent Search and Upward Bound</td>
</tr>
<tr>
<td>21</td>
<td>The Office of Digital Learning (ODL) K-12 Initiative</td>
</tr>
<tr>
<td>22</td>
<td>Project Learning Tree</td>
</tr>
<tr>
<td>23</td>
<td>Riverbend Community Math Center</td>
</tr>
<tr>
<td>24</td>
<td>Robinson Community Learning Center</td>
</tr>
<tr>
<td>25</td>
<td>Sensing Our World Summer Camp</td>
</tr>
<tr>
<td>26</td>
<td>Shodor’s Interactivate</td>
</tr>
<tr>
<td>26</td>
<td>STEAMнд/ND Waves</td>
</tr>
<tr>
<td>27</td>
<td>Teachers As Scholars Program</td>
</tr>
<tr>
<td>28</td>
<td>Notre Dame Center for STEM Education</td>
</tr>
</tbody>
</table>
American Chemical Society's Project SEED Program at the University of Notre Dame

In the summer of 2016, the Department of Chemistry & Biochemistry at Notre Dame, in partnership with the American Chemical Society, will be entering its seventh consecutive summer of hosting the Project SEED program. Project SEED is a summer research internship program designed to provide economically disadvantaged high school students the opportunity to perform full-time research in the chemical sciences. The students will undertake a research project under the auspices of a Notre Dame faculty member, receiving daily guidance and instruction in chemical and/or biochemical theory and techniques. The program provides a $2500 stipend for eight weeks of full-time (40 hrs/wk) research. Students who return for a second summer are paid $3000, and those students who go on to college and plan to major in chemistry (or a closely related major) can receive a $5000 scholarship. To be eligible, students must have completed at least one high school chemistry course and their maximum family income cannot exceed 200% of the federal poverty guidelines based on family size.

Website: http://www.acs.org/content/acs/en/education/students/high-school/seed.html
Contact: Mary Prorok (mprorok@nd.edu)

Advanced Diagnostics and Therapeutics Initiative (AD&T)

“The science of engineering a healthier world.”

AD&T is a research initiative at the University of Notre Dame with over 60 affiliated faculty in science and engineering who work together to develop tools and technologies to combat disease, promote health, and safeguard the environment. Some of their areas of focus include advanced molecular imaging, laboratory-based and portable/personal diagnostic devices, environmental monitoring, and targeted drug delivery and therapeutics. Activities also involve working directly with doctors and hospitals on new ways to diagnose and treat illnesses. AD&T is in the early stage of developing outreach opportunities and is looking for teachers whose interests resonate with initiative activities and who want to participate in building a robust outreach program.

Website: advanceddiagnostics.nd.edu
Contact: Arnie Phifer (aphifer@nd.edu)
Biocomplexity: Understanding Randomness in Biology

The University of Notre Dame’s Interdisciplinary Center for Study of Biocomplexity offers online tutorials to foster the understanding of the role of randomness in biology. The center encourages you to explore the underpinnings of modern mathematical biology, all done very gently and with a strong qualitative approach, and discover one of the many directions in which life science is traveling. The primary audiences of these tutorials are high school students and undergraduates. However, teachers, researchers in related fields, and non-specialists are certainly invited to work through some of the tutorials as well. You never know what you are going to uncover that may be new and inspiring.

Website: www.nd.edu/~tutorial/
Contact: mcbg@nd.edu

Bowman Creek Project

The University of Notre Dame is working alongside various community partners toward restoration of the Bowman Creek watershed and neighborhood in South Bend, IN. Notre Dame faculty and students in Engineering, Architecture, History, and Science are collaborating with local government, K-12 schools, and nonprofit organizations toward a decades-long completion goal of neighborhood restoration. Opportunities exist for K-12 teachers and students to engage in sub-projects related to pollution, urban planning, environmental science, and engineering.

Website: http://engagement.nd.edu/community-partners/coalitions/
Contact: Gary Gilot (ggilot@nd.edu)

DNA Learning Center

The Notre Dame DNA Learning Center was dedicated in September 2013 and opened Fall of 2014 as a hands-on science center devoted to modern biology education that will prepare K-12 students and the community to thrive in the gene age. This advanced science education center will be the ideal teaching tool to inspire young students to pursue careers in science and to build a knowledge base that will extend into their educational and post-educational careers. It is also designed to a resource for the local community on genetics information. Currently, the DNA Learning Center is open to schedule field trips for grades 4-12 and offers week-long day and residential summer camps. The DNA Learning Center can also come into the classroom for simpler activities and presentations.

Website: dnacenter.nd.edu
Contact: (574-631-1506) or email AsstDNACenter@nd.edu
Energy Research Experience for Teachers

“Engineering a More Sustainable Energy Future”

During this seven week summer program, high school teachers work with faculty mentors in the Center for Sustainable Energy at Notre Dame (ND Energy) on current research and develop practical curriculum materials for classroom use. Benefits to teachers include:

- Mentored energy research experience
- On-site curriculum development assistance
- Access to all RET created curricular materials
- Follow-up support from RET administrators and faculty mentors
- Salary stipend and campus parking
- Opportunities for collaboration and networking with other energy interested teachers

Chemistry, physics, and engineering teachers are particularly encouraged to apply. No previous research experience is required. Applications will be accepted online from January 15 – April 1, 2016.

Website: ret.nd.edu
Contact: Anne Pillai (pillai@nd.edu)

ETHOS Science Center offers:

- Comprehensive professional development for teachers that builds on existing skills while providing the essential tools and strategies to create innovative and engaging learning environments for students to fully utilize hands-on inquiry curriculum
- Learning opportunities for students that include field trips to ETHOS’ hands-on science museum, science summer camps, robotics programs K-12, and community events.
- The Science2Go Bus, a state of the art mobile science lab, for a unique on-site learning experience
- Management of research-developed materials

Website: ethosinc.org
Contact: (574) 266-7149 or email patsy@ethosinc.org

Expanding Your Horizons (EYH)

Expanding Your Horizons is a conference for girls in middle school (grades 6-8). This day-long event will include hands-on activities in science, technology, engineering, and math (STEM). At the conference, girls will get a chance to meet STEM role models and learn more about careers in those fields. The ultimate goal of EYH is to motivate girls to become innovative and creative thinkers ready to meet 21st century challenges.

Our conference is held in beautiful Jordan Hall at the University of Notre Dame on April 23, 2016. Participants interact with women undergraduate and graduate students from Notre Dame and Saint Mary’s College. A program for chaperones is available, and parents can sample activities at the end of the day. A $10 participant fee is charged and includes a t-shirt, breakfast snack, and lunch.

Website: www.nd.edu/~eyhnd
Contact: eyhnd@nd.edu

ETHOS Science Center inspires innovation and excellence through a dedicated infrastructure that supports and encourages STEM education for both students and educators. ETHOS Science Center encourages and equips educators to excel at teaching inquiry-based STEM curricula and provides strategies for building and sustaining administrative and community support for STEM education. ETHOS serves as a catalyst for students by capturing and building on each child’s curiosity, engaging them in the exponentially growing STEM fields and highlighting exciting opportunities in STEM careers while preparing them for college, career, and beyond.

Encouraging Technology and Hands On Science (ETHOS) Science Center

Website: ethosinc.org
Contact: (574) 266-7149 or email patsy@ethosinc.org

Expanding Your Horizons (EYH)

Website: www.nd.edu/~eyhnd
Contact: eyhnd@nd.edu
“Innovative and integrative basic and clinical research confronting the complex challenges of cancer.”

Scientists and clinicians in the Harper Cancer Research Institute are dedicated to conducting innovative and integrative research that confronts the complex challenges of cancer. The institute’s programmatic structure fosters multi-disciplinary cancer research by promoting interactions among research groups from distinct disciplines and by training young scientists to work across scientific fields. Clinical partnerships provide key translational insight and strengthen the mission of discovery. The institute is a partnership between Indiana University School of Medicine - South Bend and the University of Notre Dame. HCRI supports a number of high school student researchers in the American Chemistry Society Project SEED program.

Website: harpercancer.nd.edu/
Contact: Angela Cavalieri (cavalieri.2@nd.edu)

The Innovative Thinker’s Camp (InC) is a two week summer experience created to encourage youth in grades 7–9 to obtain skills that will create a mindset for individual achievement in their academic and future career interests. In addition to helping area students explore their potential, the camp also aims to cultivate a culture of innovation and entrepreneurship in the Michiana region by nurturing the pipeline that feeds local economic development. This experience is designed for students to participate over three consecutive summers:

- Year one, rising seventh graders will focus on learning about entrepreneurship and the skills necessary for individual success;
- Year two, rising eighth graders will focus on project-based learning and will develop the competencies needed to be an effective member of a team;
- Year three, as rising ninth graders, students will polish the skills acquired in the previous two summers with a capstone project that incorporates science, technology, engineering, and mathematics (STEM) disciplines and sustainability.

The camp is sponsored by the following Notre Dame departments: Community Relations, Multicultural Student Programs and Services, Hesburgh Libraries, Talent Search, and the Robinson Community Learning Center, as well as collaborations with Intel, Lenovo, the Lincoln Division of Ford Motor Company, Alpha Kappa Alpha Sorority Inc., La Casa De Amistad, 100 Black Men of Greater South Bend, the Memorial Health Center, Pfeil Innovation Center, and other community partners.

Blog: blogs.nd.edu/innovative-thinkerscamp/
Facebook: facebook.com/innovativethinkcamp
Contact: Jackie Rucker (rucker.2@nd.edu or (574) 631-3249)
Joint Institute of Nuclear Astrophysics (JINA):  
Art 2 Science and Science 2 Theater Camps

Students ages 8-12 are invited to participate in the JINA-CEE Art 2 Science Camp, which takes place each summer during July in Notre Dame’s Jordan Hall of Science. Art 2 Science Camp is an extension of our Art 2 Science after-school program, which introduces children to the wonders of the physical universe. A multidisciplinary approach to learning is utilized by integrating reading, writing, and a variety of art forms with math and the physical sciences. Participants will learn about math, physics, astronomy, and chemistry by creating works of art and hands-on projects. Activities are designed by collaborations with local leaders in education. We also accept applications from adults to be Counselors and teens to be Junior Counselors. The deadline to apply is usually in March, and fees are based on a sliding scale.

Website: jinaweb.org/outreach/artCamp/  
Contact: Micha Kilburn (mkilburn@nd.edu)

Joint Institute of Nuclear Astrophysics (JINA):  
Physics of Atomic Nuclei (PAN)

JINA-CEE has three different Physics of Atomic Nuclei (PAN) programs each summer—one week at Notre Dame for students, one week at Michigan State for students, and one week at Michigan State for teachers. All programs are free and room and board are provided. These programs introduce participants to the fundamentals of the extremely small domain of atomic nuclei and its connection to the extremely large domain of astrophysics and cosmology. During the week, participants will perform a series of experiments using state of the art research equipment to explore topics in modern physics and radiation. Interested students and teachers can apply online before April. Students should have some background in math and science at the freshman/sophomore level and must be recommended by two teachers (at least one from science or math).

Website: jinaweb.org/outreach/PAN  
Contact: Micha Kilburn (Micha.A.Kilburn.2@nd.edu)

Living Worlds Space Art Contest

Students in grades K-5 are invited to participate in the first annual Living Worlds Space Art Contest. Students will imagine what life may look like on a moon or planet beyond the Earth and submit an original artwork illustrating this alien lifeform. Classroom teachers can use the provided resources to introduce the contest and encourage students to consider how creatures may have adapted to survive in their unique exoplanet environments. Prizes will be awarded to every classroom that participates. The winning students and their teachers will receive a space swag bag and a cash prize. All entries must be postmarked by April 16, 2016.

Website: www.LivingWorlds.org  
Contact: Andrew VandenHeuvel (avheuv@gmail.com)
Michiana Astronomical Society

The Michiana Astronomical Society, founded in 1974, is a group of individuals from the South Bend/Mishawaka area who share a common interest in astronomy. Throughout the year, the club promotes astronomy education and public outreach in schools, libraries, camps, and public spaces.

Club members usually meet on the third Monday of each month at 7:00 PM in the Lions Room of the downtown Mishawaka Public Library. The meetings, which often feature a guest speaker, are open to the public. Club gatherings introduce new members and veterans alike to diverse astronomy topics, including basic telescope use, advanced scope techniques, astro-imaging, solar observing, and current astronomy items in the news.

In May, the Michiana Astronomical Society hosts its annual Star Party, which attracts observers with telescopes from across the region. This two-night event is a wonderful way for you and your family to enjoy the splendor of astronomy at a dark site, whether you bring your own equipment or look through the participants’ telescopes. If you own a telescope but need support in using it, the Michiana Astronomical Society is eager to help. At the annual Star Party and other scheduled nighttime outings, such as impromptu “Sidewalk Astronomy” sessions, visitors are encouraged to ask questions and investigate the sky in a casual, welcoming environment. See the club’s website for opportunities to witness celestial highlights such as planets, nebulae, star clusters, and galaxies.

Website: michiana-astro.org/
Contact: president@michiana-astro.org

Michiana Science and Technology Center, inc. (MSTCi)

The Michiana Science and Technology Center, inc. (MSTCi) is an education-based organization in the South Bend area designed to nurture interest in science, technology, engineering, and mathematics (STEM) learning by:

- Providing interactive experiences and sustained engagement
- Illuminating pathways to STEM careers
- Developing academic, business, and community partnerships

Website: mstci.org (MSTCi is also on Facebook)
Contact: mstci@mstci.org
National Robotics Week

The seventh annual National Robotics Week will be held April 2-10, 2016. This week recognizes robotics technology as a pillar of 21st century American innovation, highlights its growing importance in a wide variety of application areas, and emphasizes its ability to inspire technology education. Robotics is positioned to fuel a broad array of next-generation products and applications in fields as diverse as manufacturing, healthcare, national defense and security, agriculture, and transportation. At the same time, robotics is proving to be uniquely adept at enabling students of all ages to learn important science, technology, engineering, and math (STEM) concepts and at inspiring them to pursue careers in STEM-related fields.

During National Robotics Week, a week-long series of events and activities are aimed at increasing public awareness of the growing importance of “robo-technology” and the tremendous social and cultural impact that it will have on the future of the U.S.

Website: nationalroboticsweek.org
Contact: LFreed@irobot.com

Notre Dame hosts an annual National Robotics Week event that highlights how labs in various disciplines on campus utilize robotics. The ND NRW event will be held on Sunday, April 10th from Noon–4:00 pm at the Compton Family Ice Arena on the University of Notre Dame campus.

Website: engineering.nd.edu/NDNRW
Contact: Dr. Laurel Riek (lriek@nd.edu)

The Notre Dame Mechatronics Football Club hosts an annual Robotics Blue Gold Game each April. Engineering students design and build robots that function as football players and compete for the Brian Hederman Memorial Robotics Competition Award. Hederman was a Notre Dame student who passed away after his freshman year in 1995. The event is free and open to the public.

Website: sites.google.com/a/nd.edu/rfcnd/

ND LIGHTS (Laboratory Instrumentation Giving Hope to Students)

ND LIGHTS, Laboratory Instrumentation Giving Hope to Students, is a program that repurposes Notre Dame’s surplus laboratory equipment by donating it to resource-limited high schools and colleges. Since 2011, ND LIGHTS has donated over 60 working instruments to 26 schools across the U.S. and one school in Africa. ND LIGHTS is consistent with the University of Notre Dame’s core values by supporting:

- The Catholic mission by sharing our gifts with science programs in underserved school communities
- Sustainability by giving the instruments a second life as teaching tools
- Broader impacts by providing laboratory tools and training to educators and students

Blog: http://blogs.nd.edu/nd-lights/
Website: http://science.nd.edu/outreach/ndlights/
Contact: Michelle Joyce (mjoyce@nd.edu)
Northern Indiana Regional Science & Engineering Fair (NIRSEF)

The Northern Indiana Regional Science and Engineering Fair is for students grades 3-12 in Elkhart, Fulton, Marshall, and St. Joseph counties who have been selected from their Local Fairs to advance to Regional to compete for awards and entry into the Hoosier Science and Engineering Fair. The 2016 event will be held in the Stepan Center on the University of Notre Dame campus on Saturday, February 27, 2016. Students must pre-register through their Local Fair Coordinator to participate. The participation fee is $10 per student.

Website: sciencefair.nd.edu
Contact: Alisa Zornig Gura (sciencefair@nd.edu)

Northern Indiana Science, Math & Engineering Collaborative (NISMEC)

NISMEC offers professional development opportunities for K-12 teachers in science, technology, mathematics, and engineering (STEM) fields within the context of guided inquiry. NISMEC provides workshops during the summer (with stipends). Our present focus is on the Modeling curriculum for physics, biology and chemistry for high school teachers. Follow-up and other workshops are held in the schools during the academic year.

NISMEC is in need of people who can help provide exceptional guided inquiry workshop experiences for high school and middle school science teachers in Indiana. If you are interested in training to be such a leader, or if you are interested in improving student learning in your school’s science classroom through guided inquiry, please contact NISMEC for more information.

Website: nd.edu/~nismec/nismec11.htm
Contact: Gordon Berry (hgberry@nd.edu or the Physics Department Office - 631-6387)

Notre Dame Linked Experimental Ecosystem Facility (ND-LEEF)

Working in a laboratory provides scientists with a predictable and controlled setting for conducting experiments. But in the environmental sciences eventually many of those experiments need to graduate to the uncontrolled and unpredictable environment of the field—a transition that can be challenging for both the scientist and the science. To help bridge this gap between the lab and the field, the University of Notre Dame’s Environmental Change Initiative (ND-ECI) constructed a globally unique $1 million research facility that is home to two constructed experimental watersheds, each consisting of an interconnected pond, stream and wetland. Both of these experimental watersheds are roughly the length and width of a football field and they are located five miles north of campus on six acres of land within St. Patrick’s County Park. These artificial watersheds allow scientists to conduct “field experiments” in a more controlled environmental setting than nature itself can provide, thereby helping to bridge the gap that has traditionally existed between the lab and the field. This new research site is known as the Notre Dame Linked Experimental Ecosystem Facility at St. Patrick’s County Park, or ND-LEEF for short and includes and Education and Outreach Pavilion for K-12 student learning.

Website: http://environmentalchange.nd.edu/programs/nd-leef/
Contact: jmcnulty@nd.edu
Notre Dame QuarkNet Center

Physicists and K-12 teachers collaborate to make modern physics more accessible to K-12 students and the larger Michiana community. Paid summer research positions are available in physics through the Physics RET Program (Research Experience for Teachers). Participants are eligible for non-degree graduate student credits. Physics RET teachers may invite students from their high schools to collaborate with them on physics research projects during the summer through the QuarkNet REHS Program (Research Experience for High School). Teachers and physicists also meet weekly during the academic year to discuss physics, teaching, research, and other topics of interest.

Website: nd.edu/~quark
Contact: Anne Zakas (zakas.1@nd.edu or (574) 631-2789)

Notre Dame QuarkNet Center: International Masterclass

In International Masterclasses, high school students can embark upon a journey to study the smallest building blocks of matter by tracking real data samples online from the Large Hadron Collider at CERN with the help of their teachers and mentor physicists. In this Preparation, students will be given the tools to analyze the data from home and get mentoring online. Later, they will participate in a video conference with other groups of students from around the world to review their data measurements and compare their results.

Website: http://www.physicsmasterclasses.org
Contact: Ken Cecire (kcecire@nd.edu)
Notre Dame TRiO Programs: Talent Search and Upward Bound

The U.S. Department of Education’s TRiO Programs are federal outreach and student services programs designed to ensure equal educational opportunity for all Americans, regardless of race, ethnic background or economic circumstance. Collectively, these programs assist young people from low-income families and potential first-generation college students as they progress from middle school, high school, college and beyond. In partnership with the U.S. Department of Education, the University of Notre Dame proudly hosts two of TRiO’s college access and preparatory programs: Talent Search and Upward Bound.

TRiO Talent Search annually assists 899 youth in grades seven through twelve - empowering them to graduate from high school and continue on to postsecondary education. During the academic year, Talent Search advisors offer in-school academic counseling to students, as well as workshops designed to equip students with the skills and information needed to prepare for, apply to, and succeed in college. Talent Search students also have access to individual tutoring assistance, SAT/ACT test preparation, college tours, and a variety of other activities that expose them to valuable cultural, educational, and career-focused information. Additionally, TRiO Talent Search hosts a three-week Summer Academy for rising ninth grade students in the South Bend community.

TRiO Upward Bound serves 101 high school students each year. Through intensive academic support and exposure to the college-going experience, Upward Bound equips area high school students for entrance and success in higher education. During the academic year, Upward Bound provides students with individualized tutoring and instruction in core subjects. Students also receive academic advising and participate in college-readiness workshops. College tours and a variety of other activities are also offered to connect students to valuable cultural, educational, and career-focused events. In the summer, Upward Bound’s Summer Academy offers students opportunities to live on campus and take classes for high school and college credit.

Website: trio.nd.edu
Contact: Ethan Zagore, Director, TRiO Programs ezagore@nd.edu or (574) 631-9004

The Office of Digital Learning (ODL) K-12 Initiative


The ODL was formally established in 2014 to enhance campus-wide teaching and learning for university students and learners across the globe. In its daily operations, the ODL partners with faculty and academic organizations across campus to design, develop, and deliver a wide range of digital assets for education. As a part of the university’s broader mission, the Office of Digital Learning is actively seeking opportunities to build mutually beneficial partnerships while working to make a positive impact on local/regional K-12 education. The ODL is in the early stages of working to cultivate sustainable partnerships where local practitioners, business leaders, and school districts work together to enhance teaching and learning for K-12 students in our community. As we build our outreach initiative, we would like to connect with innovators or those aspiring to innovate---local business leaders/visionsaries, educational leaders, educational practitioners---who are interested in leveraging technology to enhance both pedagogical practice and students’ learning experiences.

Website: online.nd.edu
Contact: Crystal J. DeJaegher (dejaegher@nd.edu)
Project Learning Tree

Project Learning Tree (PLT) is an award-winning, internationally recognized environmental education program that provides ready-made lessons and activities for educators. PLT can integrate easily into an existing curriculum and can be used to supplement all subject areas. PLT uses the forest as a “window to the world,” helping young people gain an awareness and knowledge of the world around them and their place within it. Students develop skills in creative problem solving, critical thinking, and evaluation and research while having fun.

PLT uses instructional strategies that model STEM practices, including hands-on activities, promoting teamwork, building investigation and research skills and can easily be integrated into all subject areas. They are correlated to both state and national educational standards, useful to formal and non-formal educators from pre-school through high school. PLT is designed to teach students HOW to think, not tell them what to think. To obtain PLT materials, you must attend a PLT workshop where the program is introduced, activities are conducted, and many more teaching resources are provided.

Website: in.gov/dnr/forestry/5750.htm
Contact: Donna Rogler (plt@dnr.IN.gov or (317) 234-5143)
Robinson Community Learning Center

The Robinson Community Learning Center (RCLC) was established in 2001 as an educational initiative of the University of Notre Dame with local residents and partner institutions. Its mission is to welcome community and Notre Dame partners that strengthen the Northeast Neighborhood of South Bend through relationship building and educational opportunities. RCLC programs are overseen by a program advisory board comprised of residents, program partners, ND faculty/staff, and students. Hundreds of college volunteers participate in the RCLC tutoring program each year, matched one to one with area children.

Enrichment activities in engineering (iRobotics Club), performing arts (Robinson Shakespeare Company), fine arts (Photography Club and art activities), youth leadership (including College Prep and Be Inspired), and science (through partnership with the Biology Dept. at Notre Dame) are offered with a preference for those living in the 46617 zip code. The RCLC offers the Take Ten violence prevention program in schools and community agencies throughout South Bend/Mishawaka, the curriculum of which is delivered by more than a hundred college student volunteers. It also offers a youth entrepreneurship program in partnership with the Gigot Center for Entrepreneurial Studies, Mendoza College of Business at Notre Dame, and a range of classes for adult learners, including senior book clubs and computer classes.

English as a New Language (ENL) classes for adults are offered at RCLC, in partnership with the South Bend Community School Corp. and an ENL Preschool program is provided for children whose parents attend the adult ENL classes. The RCLC also offers literacy tutoring for children in grades K–6 at two Boys & Girls Club sites and El Campito, in addition to providing a high quality technology center at its main location.

Website: rclc.nd.edu/
Contacts: Velshonna Luckey (vluckey@nd.edu or (574) 631-3312) or Jennifer Knapp Beudert (knappbeudert.1@nd.edu or (574) 631-2686)

Sensing Our World Summer Camp (SOW)

Middle school summer science camp SOW is a week-long summer program at the University of Notre Dame designed to expose middle school students to the exciting world of science, mathematics, and technology. Participants meet with various Notre Dame scientists to learn about their research, visit different academic departments and research labs on campus, and learn through intensive hands-on activities. Program instructors include Notre Dame faculty, staff, and graduate students from the physics, chemistry, mathematics, biological sciences, and engineering departments. The program is nonresidential and registration is $250 per student, but scholarships are available for families in need (free/reduced lunch students). The one-week programs is usually on two or more different dates. In 2013, the program was entitled Sensing the Cosmos; each year a different area of science is the focus. The program is sponsored by NISMEC, with funds mostly provided by the Siemens Foundation, with additional support from the College of Science and the Department of Physics at Notre Dame.

Websites: www3.nd.edu/~nismec/nismec11.htm, STC.michianastem.org
Contact: Gordon Berry (hgberry@nd.edu)
Shodor’s Interactivate

To encourage the use of computational science resources in learning, the Notre Dame QuarkNet Center will offer interactivate workshops upon request. Shodor is a nonprofit organization serving students and educators by providing materials and instruction relating to scientific, interactive computing. Many teachers use Shodor’s award-winning, free online education tools to build student excitement in science, technology, engineering, and mathematics (STEM) through interactive explorations using computer enhanced activities.

Website:  shodor.org/interactivate  
Contact: (Thomas.J.Loughran.8@nd.edu or (574) 631-3362)

STEAMnd/ND Waves

STEAMnd is a community engagement event integrating Science, Technology, Engineering, Arts, and Mathematics that focuses on “WAVES: Wonder-Arts-Vibration-Energy-Science.” Fifth grade students from area schools complete hands-on activities with Notre Dame undergraduates to learn about the properties of sound waves. Fifth graders are tasked with making their own sound waves by making different types of sounds with their lips and have to evaluate whether the waves are large/small or fast/slow. The students also learn about an oscilloscope, a tool used to visualize sound waves, and illustrate the different types of sounds they observe with the tool. In addition to the sound wave exercises, the students assemble musical instruments the undergraduates produce as part of a one-hour multidisciplinary course and take a tour of the ND Design Deck to see where and how their new instruments are made.

Website: http://goo.gl/CVk8cl  
Contact: Sean Martin (smartin2@nd.edu)
Notre Dame Center for STEM Education

The Notre Dame Center for STEM Education housed in the Institute for Educational Initiatives, was founded in 2013 to make a lasting impact in STEM education. Through its research and the translation of evidence-based findings into programs and longitudinal teacher professional development, the Center is focused on increasing student interest and learning in the STEM disciplines. The center collaborates with departments and programs across the Notre Dame campus, across the state, and across the nation to address emerging needs in STEM education.

The Center’s research and outreach activities in two major areas:

1) improving the quality of STEM teaching and
2) increasing students’ access to rich STEM learning experiences.

Current projects include research on the impact and critical components of STEM-focused schools, core science teaching practices, and teachers’ use of student performance data to make instructional decisions in science classrooms. Outreach activities include professional development on the Next Generation Science Standards and a host of STEM-focused summer experiences.

Website: stemeducation.nd.edu

---

Teachers As Scholars Program

The Teachers As Scholars program provides teachers and administrators the opportunity to become students again. Teachers gather with colleagues from neighboring school districts to study, discuss, and reflect upon scholarly issues in an intimate seminar setting.

Notre Dame’s Teachers As Scholars program partners with:

- South Bend Community School Corporation
- Diocese of Fort Wayne-South Bend Catholic Schools
- Penn-Harris-Madison School Corporation
- John Glenn School Corporation
- Union-North United School Corporation
- School City of Mishawaka

The two-day seminars take place on the campus of the University of Notre Dame from 9:00 a.m. to 3:30 p.m. Member school districts or schools partner with the University to provide the seminars to their teachers and administrators at no cost to the participant.

Teachers are encouraged to sign up for seminars on topics that interest them, regardless of the grade level or content area they teach or their administrative focus. All seminars are designed to offer engaging, participatory experiences.

Registration takes place each fall for the following calendar year.

Website: tas.nd.edu
Contact: Anne Pillai (pillai@nd.edu)
Thank you for attending today’s forum.

Additional STEM education information can be found at: michianastem.org/