

WHAT ARE SUMMER PROFESSIONAL DEVELOPMENT INSTITUTES?

The Wade Institute for Science Education offers unique professional development courses each summer that connect you with hands-on, minds-on, inquiry-based activities that will increase your STEM content knowledge. Choose from a variety of locations and themes across Massachusetts. Spend a week with fellow teachers on-site at multiple partner organizations, and experience effective, inquiry-based science learning! We'll provide you with the practical skills you need to integrate more hands-on, minds-on science learning into your curriculum. You'll leave the course with a deeper understanding of inquiry, and new techniques to reinforce your students' natural curiosity and spark their interest in STEM. Together, we'll ensure that young learners discover STEM content in an intuitive, impactful way.

Inquiry-based, hands-on science, technology, engineering and math (STEM) professional development for K-12 teachers and informal educators.

- **Learn** directly from scientists and education professionals to expand your knowledge in a variety of STEM topics.
- **Visit** each partner organization's site, and explore science, technology and engineering content by engaging with industry professionals and in inquiry-based activities.
- **Discover** resources from museums, science centers and higher education institutions in your community that you can utilize throughout the school year.
- **Take on** the role of a student as you investigate science content and collaborate with your peers both in the field and in the classroom.
- **Participate** in content and skill-based development sessions aimed at strengthening your students' interest in and passion for STEM.
- **Explore** what the Science and Engineering Practices look like in the classroom.
- **Earn** Professional Development Points (PDPs) while you improve your confidence in teaching science, and even take an institute for graduate credit.

REGISTRATION COSTS:

\$425 per participant
 \$400 per participant if attending in a team with one other teacher from your school district
 \$375 per participant if attending in a team with 2 or more other teachers from your school district
Early Bird Discount Available - submit payment before April 15th to receive an additional \$25 off registration.

PDPs AND OPTIONAL GRADUATE CREDIT:

Framingham State University (Cape Cod & Southeast Regions): \$225 for 3 credits and 67.5 PDPs
Fitchburg State University (all regions except Berkshire): \$295 for 3 credits and 67.5 PDPs
Massachusetts College of Liberal Arts (MCLA) (Berkshire Region): \$150 for 3 credits and 67.5 PDPs
40 PDPs are available without graduate credit.

**QUESTIONS? PLEASE CONTACT US AT
 617-328-1515, OR
 WADEINSTITUTE@WADEINSTITUTEMA.ORG**

FOR MORE DETAILED INFORMATION AND TO REGISTER, VISIT WWW.WADEINSTITUTEMA.ORG.

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2019 Summer Professional Development Institutes

ENGAGING YOUR STUDENTS IN THE SCIENCE AND ENGINEERING PRACTICES

July 8 - 12 or July 15 - 19

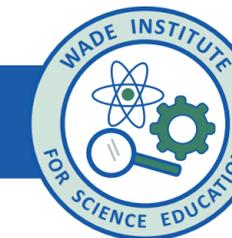


Enhance your skills this summer with hands-on, minds-on, inquiry-based science!

Our Partners & Collaborators:



NATURE MATTERS



Wade Institute for Science Education
 (Formerly MITS, Inc.)

Berkshire Region

THINKERS AND TINKERERS: USING BIOMIMICRY TO TEACH ENGINEERING AND LIFE SCIENCE

One Week Institute for Grades 3-8 Educators

- **Immerse** yourself in the world of innovation and problem-solving
- **Discover** how nature's designs can connect science content to real-world design challenges to produce models, tools and prosthetics, and learn how to bring the design challenge to your own students.
- **Examine** examples of biomimicry to explore how nature's own innovations can help us tackle health and environmental issues.
- **Meet** with research and design engineers to learn how they develop high performance plastics, polymers and metals, and observe how they use polarized light to test the stress strength of a product.
- **Experience** how the engineering design process works to produce anatomically correct models of human organs and other products for medical study and testing.
- **Learn** how to create a science center at your school to build these experiences into inquiry-based investigations for students.

Partners & Collaborators: Flying Cloud Institute (Lead Institution), MASS MoCA, Miss Hall's School, Mass Audubon's Pleasant Valley Wildlife Sanctuary, Nature Matters, Sabic Manufacturing, The Chamberlain Group

Dates: July 8-12, On-site Introductory Session June 15, Call-back date will be set during the course



North Central Region

EXPLORING INNOVATIVE SOLUTIONS TO ENVIRONMENTAL CHALLENGES THROUGH GREEN CHEMISTRY, BIOMIMICRY AND REAL WORLD TECHNOLOGIES

One Week Institute for Middle and High School Educators

- **Discover** how green chemistry, the science of creating safe, energy efficient and non-toxic processes and products, is providing sustainable solutions for the environmental challenges facing our society today.
- **Explore** how biomimicry applications are informing the design of everyday items, including safer hair dyes and surfaces that prevent bacteria from growing, to build awareness of environmental issues.
- **Gain** an understanding of how Harvard Forest gathers and uses real-time data to investigate how forests are helping in the fight against climate change.
- **Visit** the Eco-Art Mobile to learn how this tool is being used to build environmental awareness around the issue of ocean plastics.
- **Examine** how industry and academia are working to understand climate change and design materials to use excess carbon dioxide.
- **Build** your understanding of the environmental challenges associated with plastics.
- **Investigate** how agricultural waste and mushroom mycelium can be used to create alternative materials used in the manufacture of anything from packing to lamp shades.

Partners: Beyond Benign (Lead Institution), Fitchburg State University, The Revolving Museum, Harvard Forest, Mass Audubon's Wachusett Meadow Wildlife Sanctuary

Dates: July 15-19, On-site Introductory Session June 22, Call-back date will be set during the course

Housing is available for this region.



Southeast Region

INQUIRY AND INNOVATION: HOW SCIENCE INFORMS ENGINEERING SOLUTIONS

One Week Institute for Grades 3-8 Educators

- **Interact** with engineering and design staff of local companies and learn how they problem-solve design and production issues during new product development for the aerospace, agricultural, automotive defense, energy and medical industries.
- **Explore** the role that Materials Science plays in manufacturing and how it informs the design process.
- **Discover** how engineers solve modern-day problems and design challenges, such as building and improving sensor technology, manufacturing precision parts and controlling production costs.
- **Observe** local research scientists using technology in the field as they gather real-time data to investigate changes in natural phenomena.
- **Identify** the tools and techniques used to monitor shifts in local wildlife populations that are a result of climate change, and learn how to incorporate the same tools and techniques into your own classroom investigations.
- **Participate** in design challenges and experience open-ended problem solving through new design iterations.
- **Learn** how technology and engineering have advanced the study of natural history, and discover how you can integrate them into student investigations.



Partners & Collaborators: Mass Audubon's Stony Brook Wildlife Sanctuary (Lead Institution), AccuRounds, North Easton Machine Company, Sensata Technologies, Coyle & Cassidy High School & Middle School

Dates: July 15-19, On-site Introductory Session June 22, Call-back date will be set during the course

Cape Cod Region

GO UNDER THE SEA WITH STEM: INVESTIGATING MARINE LIFE FROM OPEN OCEAN TO COASTAL SHORES

One Week Institute for Middle and High School Educators

- **Discover** how technology and engineering have advanced the study of marine animal science as you explore the natural history of many diverse, fascinating and often mysterious animals of the marine environment.
- **Engage** with scientists in the field and discover new tools, methods and techniques used to make marine biology and technology more accessible to your students.
- **Dive into** inquiry-based learning with the deep ocean frontier as your backdrop.
- **Meet** at the interface of laboratory science and field research to investigate influenza in the wild seal population.
- **Identify** the tools and techniques used to monitor marine biodiversity and wildlife population shifts in local habitats that are the result of climate change.
- **Learn** about the important roles marine fauna play in Massachusetts' marine ecosystems.
- **Explore** salt marshes, estuaries and rocky shores to gain an up-close perspective of the habitats of organisms.

Partners & Collaborators: National Marine Life Center (Lead Institution), Lloyd Center for the Environment, Atlantic White Shark Conservancy, Tufts University, Woods Hole Oceanographic Institution, Massachusetts Maritime Academy

Dates: July 15-19, On-site Introductory Session June 15, Call-back date will be set during the course

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OTHER WADE INSTITUTE PROGRAMS

Share this with your department chairs, administrators or principals!

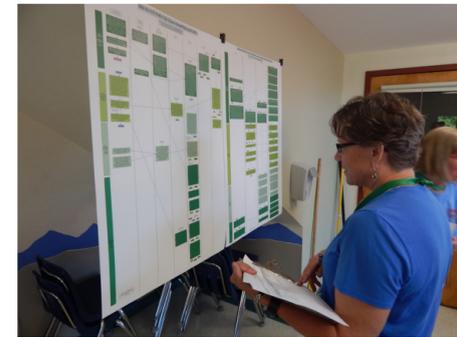
CUSTOMIZED PROFESSIONAL LEARNING SERVICES

Support your educators by arranging for them to engage in inquiry-based learning through hands-on, minds-on professional development at your school. Our Education Specialists will design sessions based on your school's or school district's identified professional learning needs. Your teachers will delve deeper into the 2016 MA Science and Technology/Engineering Curriculum Frameworks, explore what the Science and Engineering Practices look like in the classroom and participate in standards-based, inquiry-based investigations.

Wade Institute Customized Professional Learning Services...

- provide professional learning experiences tailored to teachers' needs within a school or district
- support districts' efforts to implement the 2016 MA Science and Technology/Engineering Framework
- model the use of the Science and Engineering Practices for instruction and assessment
- apply inquiry-based science instruction principles
- foster teachers' use of inquiry-based, hands-on instruction and assessment
- support school-based initiatives to strengthen science instruction and assessment
- use a variety of scheduling options to offer sustained learning experiences to promote lasting change
- provide scientific content relevant to the Disciplinary Core Ideas

Visit www.wadeinstitutema.org to find out how we can help educators at your school or district enhance their teaching toolkits with inquiry-based learning!



SCIENCE BY CONNECTIONS

Connect with STEM resources across the Commonwealth of Massachusetts by browsing our searchable database of STEM providers. Search by grade level, subject, program type, region and MA Standards addressed for field trips, field studies, in-school, and online programs for classrooms as well as professional development opportunities for yourself.

Teachers can search by grade level, region, program type and content standards for local learning opportunities offered by Massachusetts-based nonprofits and STEM organizations. The site also links to the latest news in STEM education, and promotes the state's regional STEM Networks.

Start your search for STEM resources today on www.sciencebyconnections.org!

