

## Every Day Is National Lab Day

President Barack Obama recently issued a call for increased hands-on learning in U.S. schools in an address at the National Academy of Sciences. “I want you to encourage young people to be makers of things, not just consumers of things,” he said.

Obama concluded that the future of the United States depends on our ability to encourage young people to “create, and build, and invent.”

Founders established National Lab Day (NLD) in response to the president’s call to action. The first NLD celebration was May 12, 2010, though NLD projects are taking place in schools throughout the year.

NLD is a grassroots effort in participatory citizenship designed to encourage young people to become makers of things. Organizers define a lab in this context as “any place where students can explore, experiment, and test. A lab could be a laptop for a software designer, a mountaintop to a geologist, a computer link to a distant particle accelerator to a physicist, or a factory floor to an industrial engineer.”

The purpose of NLD is to inspire future innovators by pairing veteran scientists and engineers with classrooms to support hands-on projects. Educators can request assistance and resources through the NLD site at [www.nationallabday.org](http://www.nationallabday.org).

### Request Resources through NLD

The beginning of the school year is the ideal time to post a request for a project in your school. The NLD philosophy is that teachers know best what they need to improve their students’ hands-on learning experiences, whether it’s additional lab equipment, personal mentoring from a scientist, a visit to a working lab, tech support, internships,



The National Lab Day website automatically suggests potential matches to both STEM professionals and teachers, based on location and specialty. Scientists and engineers who are interested in helping teachers in their community can view a map of all project requests.

help with a lesson plan, up-to-date career information, help with a science fair project, or just an extra set of hands for a class project.

The NLD site will identify volunteer mathematicians, scientists, and engineers with expertise and resources that meet teachers’ needs and list them by location. A teacher with a specific project in mind can also post a description seeking specific resources. This allows volunteers to view the range of projects to which their expertise is relevant.

Obama has called on “all 200,000 scientists who work for the federal government to participate in National Lab Day and help stoke the natural curiosity of students.” Responding organizations have included federal agencies, such as the National Institutes of Health and the National Science Foundation (NSF), as well as professional associations, including the American Chemical Society, the American Physics

DonorsChoose.org  
An online charity connecting you to classrooms in need.

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- 1. You give** to a classroom project.
- 2. We deliver** the materials to the class.
- 3. Kids learn** and show it in photos and thank-you notes.

Donorschoose.org supports teachers who have National Lab Day projects. Requests range from pencils for a poetry writing unit, to violins for a school recital, to microscope slides for a biology class.

Association, and the National Science Teachers Association.

NLD makes use of another resource for schools at [www.donorschoose.org](http://www.donorschoose.org). Teachers who create projects on the NLD site are eligible to request resources from the DonorsChoose association. A Bronx, New York, teacher established this organization to allow donors to choose school projects that they wish to support.

### Find Help with Engineering Projects

Engineering Pathway ([www.engineeringpathway.org](http://www.engineeringpathway.org)) is another resource, established with support from the NSF, that provides access to a digital library of engineering resources for schools. Engineering Pathway maintains the contents of this digital library and works in partnership with the American Society for Engineering Education.

This portal provides a convenient starting point to access many collections of resources related to engineering education, such as the TeachEngineering collection (<http://TeachEngineering.org>), which provides access to classroom-tested lessons, projects, and curricula.

The Plasma Globes and Electricity lesson plan, developed at Penn State University, is another good example of the types of resources available on the site.

Engineering Pathway provides concepts and activities that support STEM

education. The NLD site provides connections to resources to implement these lessons. For example, the search term *plasma* yields a listing for James Rome, a theoretical plasma physicist specializing in charged particle orbits. Rome is now retired from Oak Ridge National Laboratory but continues to edit a newsletter published by the Oak Ridge Fusion Energy Division. He is available as a consultant to support school projects. Similarly, a teacher could request a plasma globe teaching kit through the DonorsChoose site to secure the materials for the project.

### Connect Your Classroom to the World

When the Web was first emerging, Judi Harris established the Electronic Emissary (in 1992) to connect volunteer subject-matter experts, such as meteorologists and paleontologists, with schools so that they could work virtually with students over an extended period. Harris currently holds an endowed chair at the College of William and Mary, where the Electronic Emissary (available at <http://emissary.wm.edu>) is the longest-established service of this type.

In the two decades since the Electronic Emissary was created, many other resources, Web 2.0 technologies, and social media have emerged to support these types of efforts. However, the goal of connecting the class-

room to the world remains the same. Many resources are available through NLD projects:

**Identify a lab activity.** Use resources such as the Engineering Pathway to identify lab activities that extend and support this year's curriculum.

**Invite collaboration.** Post the project on the NLD website to invite the participation of external consultants with expertise related to the project.

**Request resources.** Use your NLD project ID to request materials and resources to support the project from the DonorsChoose site.

**Implement the project.** You can use the Community feature on the NLD site to post events and interact with others who are conducting related hands-on activities in their classrooms.

**Celebrate National Lab Day.** Post a video of students carrying out the project during the course of the school year to win prizes and national recognition.

The goal of NLD is to support hands-on learning for students by upgrading labs and building communities of support for teachers who encourage project-based learning. Pulitzer Prize recipient Thomas Friedman, author of *The World is Flat*, cites NLD as the type of initiative needed to ensure that today's children will be competitive in tomorrow's world. Equally important is that these hands-on activities are engaging for students and provide opportunities for them to learn in authentic ways.



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