

# Science Made Real

How do we make science, math and the other STEM fields of study exciting for students? Make them understand that if we want to keep America moving forward, we need people with a scientific state of mind.

If you're rethinking how students learn the core STEM fields of study in your classroom, turn to The Henry Ford as a unique source for creating a curriculum that gives a holistic, humanities-based context to principles of science.

Here, physics, engineering and even the environmental sciences are put in motion through hands-on exhibits, interactive experiences and online supplements.

Examine the vast array of simple and complex machinery, from the combine and steam engine to the locomotive and automobile, on display in Henry Ford Museum. Invite students to identify the problems they think these machines looked to solve and the differences they see in machine design and engineering as needs and technology evolved over the decades.

Participate in the Ford Rouge Factory Tour, and ask your students to consider the plant's "living roof" and outdoor Living Laboratory. Guide younger schoolchildren to take an up-close look at how living organisms around the factory get what they need to survive as they help humans recover the natural ecology of the area. With older students, help them make the

complex connection that responsible manufacturing requires knowledge of environmental sciences as well as knowledge of modern-day engineering and manufacturing techniques.

Explore Thomas Edison's Menlo Park Laboratory in Greenfield Village. Learn how Edison worked with a team to bring ideas from paper to prototype, and then open up the discussion about why, like Edison, we must consider the practicality and commercial viability of what we create.

To bring the laws of physics into focus, use the online Racing Educator DigiKit to show how aerodynamics, friction, energy and other principles of science work to make a race car move. Or visit the *Heroes of the Sky* exhibit in Henry Ford Museum and learn about wing shape and airflow through a test flight of your own handmade paper airplane.

View the STEM educational programs with core focuses on science and technology, from The Henry Ford. Renew your students' natural curiosity to question, hypothesize, experiment and imagine — and build that scientific state of mind.

## RESOURCES

### ON-SITE PROGRAMS

#### Heroes of the Sky

Exhibit in Henry Ford Museum with online "Pilot Log" student exploration guide and unit plans; Free with admission

#### Test Drive Smart Tools

Self-guided activity at Ford Rouge Factory Tour; Free with admission

#### Outdoor Living Lab

Guided program at Ford Rouge Factory Tour; Free with admission May to mid-October, weather permitting

### FIELD TRIP ENHANCEMENTS

#### History Hunter: Investigating Environmental Innovations at Ford Rouge Factory Tour

#### History Hunter: Investigating Manufacturing at Ford Rouge Factory Tour

#### History Hunter: Investigating George Washington Carver and the Mattox Family Home in Greenfield Village

#### History Hunter: Investigating Innovations & Generations at Henry Ford Museum

#### History Hunter: Investigating the Making of Innovators in Greenfield Village

### CLASSROOM RESOURCES

#### Science, Life Skills and Innovations in American Automobile Racing

STEM (Science, Technology, Engineering & Math), grades 3-8 Educator DigiKit

#### Physics, Technology and Engineering in Auto Racing

STEM (Science, Technology, Engineering & Math), grades 9-12 Educator DigiKit

#### Sustainability: Environmental Management and Responsible Manufacturing

Teacher Packet and self-guided itinerary for Ford Rouge Factory Tour, grades 9-12

#### Human Impact on Ecosystems

Teacher Packet and self-guided itinerary for Ford Rouge Factory Tour, grades 6-8

#### Life Requirements

Teacher Packet and self-guided itinerary for Ford Rouge Factory Tour, grades 3-5

#### The 21st-Century Factory: Environmental Innovations at the Rouge

PowerPoint Slide Show

### THE HENRY FORD IMAX® THEATRE

#### Flight of the Butterflies

With Educator Guide Through spring 2014

Visit [thehenryford.org/resourcebank](http://thehenryford.org/resourcebank) for resource descriptions and curriculum connections.

◀ **Left Page:** Bottles and vials in Thomas Edison's Menlo Park Laboratory in Greenfield Village — filled with mystery today — beckon guests to the world's first research and development lab.

▼ The Living Roof at the Ford Rouge Factory is the largest green roof in the world.



▲ Flight of the Butterflies in 3D paints a picture of butterfly migration at The Henry Ford IMAX® Theatre.

◀ Guided program at Ford Rouge Factory Tour.