

What is Learning Blade?

Learning Blade® is a supplemental online curriculum for middle and early high schools that is uniquely focused on increasing awareness and interest in STEM careers. Learning Blade uses game-based “missions” that focus on societal problems and needs instead of building the program around a particular technology or scientific principle. This helps to engage students such as girls that have a higher intrinsic motivation towards helping people versus scientific inquiry. The missions involve a wide variety of STEM domains and careers, allowing exposure to more contexts than are traditionally available in these grades. The missions also demonstrate how core academic skills are used in STEM careers, producing analytic reports on the specific skill objectives for individual student or classes. The convenient web-based format allows it to be integrated into any classroom.

Learning Blade has been validated as a supplemental tool for increasing STEM career awareness and interest by Battelle Education.

BATTELLE Education

Learning Blade was identified as a suggested STEM resource in ACT's Condition of STEM 2015 Report.

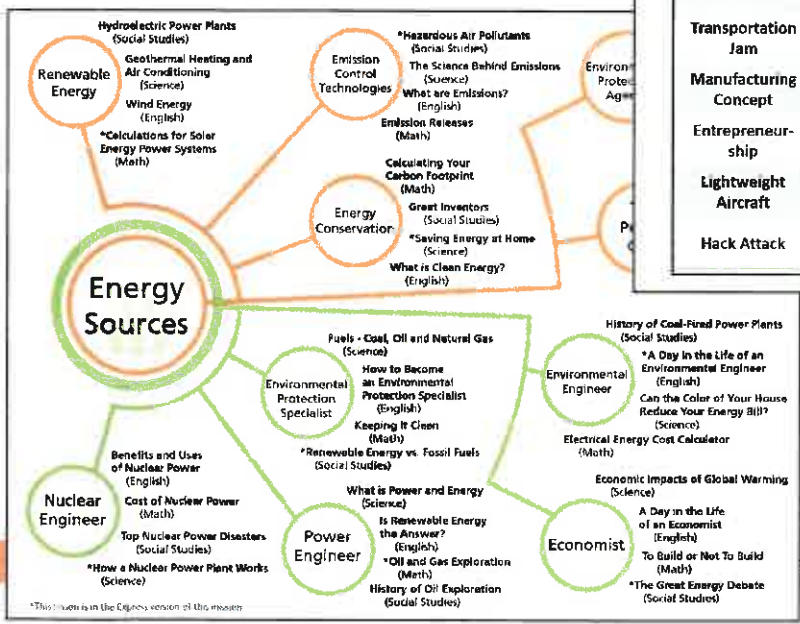


Missions:

In Learning Blade missions, students learn about technologies and careers while completing short lessons that demonstrate how academic skills are used in industry. These twelve missions focus on different career clusters as shown. Students earn points and compete individually or in teams by answering questions and exercises correctly. A sample outline of one of the missions is shown below.

Twelve Different “Mission” Stories for Individualized Context

Dolphin Rescue	Help rescue rehabilitate an injured dolphin, including creating an artificial prosthetic tail	Biomedicine, Marine Science
Haiti Orphanage	Design and build an environmentally-sound orphanage for children left homeless by an earthquake in Haiti	Construction, Sustainability
Heart Surgery	Conduct heart surgery and therapy for a child with a heart defect; evaluate the use of artificial hearts or heart components	Medicine
Energy Production	Evaluate alternative or upgraded energy sources for a city that currently has an old coal-fired power plant	Energy Production, Environment
Local Food	Consider methods to increase production of local foods in a community	Agriculture
Robotics Design	Explore technology used for robotics design, such as sensors, electrical circuits, industrial design and computers	Electronics, Computer Science
Flu Outbreak	How health and IT professionals can use data warehousing and analysis to predict flu outbreaks using GIS and social media data	Information Technology
Transportation Jam	Evaluate new transportation methods for a city that has a traffic congestion problem	Transportation
Manufacturing Concept	Use modern manufacturing techniques to design and build a new concept car	Advanced Manufacturing
Entrepreneurship	Set up a new business with a focus on entrepreneurship	Finance, Business
Lightweight Aircraft	Design a lightweight and easily maintained aircraft for distant missions	Lightweight Metals Manufacturing
Hack Attack	Learn about methods to create and protect website, apps and social media after a school's website and media are hacked	Computer Science



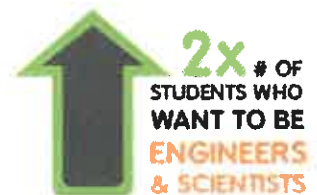
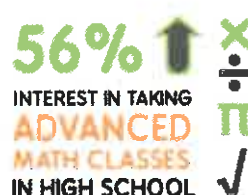
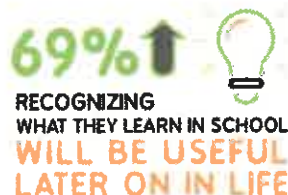
Mission Challenges:

Based on feedback received from educators, the Learning Blade team created “Mission Challenges” which promote dynamic problem-solving skills. Mission Challenge exercises create situations for students to take what they’ve observed from the industry careers showcased in Learning Blade missions and begin to solve similar problems for themselves. These in-class exercises are designed for both individual instruction and group learning.

Learning Blade Results

Learning Blade increases STEM career awareness and interest and demonstrates the relevance of academics to real-life jobs. Research-based data show that Learning Blade:

- Introduces STEM careers and technologies to a wide range of students:
After using Learning Blade,
 - **70%** of students said they learned about new careers.
 - **75%** of students said they learned about technology.
- Demonstrates the relevance of academic studies to future careers and life:
Using Learning Blade increased the number of students who strongly agree that:
 - *“What I learn in school will be useful later in my life”* by **69%**.
 - *“Math is helpful when solving interesting problems”* by **79%**.
- Increases interest in following a path to STEM careers, including appropriate academic preparation in high school:
Using Learning Blade increased the number of students who say that:
 - *“I would like to be an engineer or scientist in the future”* (strongly agree) by **97%**.
 - *“In high school, I plan to take advanced math classes or more science classes than are required”* by **56%**.



Nationwide Growth

Learning Blade is experiencing exponential growth. Why? Our technology has so many new adopters because it is filling a very real need in education. Teachers for 100 years have heard students ask them the question, “When will I ever use this?” Learning Blade answers the age old question while applying both Math and ELA standards to all their lessons. Learning Blade has been proven to both improve knowledge and interest in STEM while simultaneously improving reading and math skills.

TENNESSEE



The Tennessee STEM Innovation Network (TSIN) has been providing support to TN schools in STEM for several years. One of their goals is *Increasing STEM Interest for ALL Tennessee Students*. They turned to Learning Blade[®] to assist in increasing student interest and achievement in STEM. By making Learning Blade[®] available, at no cost to all middle schools in the state of Tennessee, TSIN hopes to introduce STEM opportunities to students in a novel format that demonstrates the benefits and roles of the careers in society. The added benefit of the Learning Blade platform is it also demonstrates the relevance of academic skills to STEM careers and provides real-world examples of the use of math and ELA skills in practical situations. We have engaged with the following partners in the statewide implementation.



ARKANSAS



The Arkansas Public School Resource Center (APSRC) was created to provide educational support services and technical assistance to charter schools and rural school districts in Arkansas. Working with the office of the Governor, APSRC is making Learning Blade available statewide with the support for the Arkansas Department of Education and the Department of Career Education. The partnership of the APSRC and Learning Blade allowed the level of support for the pilot districts with the focused professional development and technical assistance made the implementation seamless in the over 70 pilot sites across the state and it is now being implemented state wide.

WASHINGTON, DC

The U.S. Department of Energy, Minorities in Energy Initiative seeks to increase awareness and engagement of diverse Americans in the energy sector through a focus on: STEM education, Workforce development, Energy economic development, and Climate change objectives. To that end they are providing Learning Blade to DC middle school students “See Their Future in STEM.” STEM jobs are some of the best career opportunities for students in the DC area, yet most students are not interested or prepared for them. Studies show that the major reason that middle school students do not follow a STEM path is lack of awareness of the variety of STEM careers. The Department of Energy is changing all that by making Learning Blade’s effective supplemental online STEM career awareness program available to all DC middle schools.



KENTUCKY

The Lightweight Innovation for Tomorrow (LIFT) consortium is using Learning Blade to support KY schools developing a STEM career awareness, particularly an educated and skilled workforce knowledgeable of the light weighting technologies and processes. LIFT is an industry-led, government funded consortium that is reimagining processes and procedures to facilitate technology transfer into supply chain companies and empowering the lightweight metals workforce. LIFT believes using Learning Blade will aid in their goal to help the continuum of education and training that must be available in communities and states seeking to sustain, grow, and attract manufacturing jobs in their economy. A new LIFT Mission was also released in October.



ALABAMA

In Rocket City, Huntsville Alabama, one visionary school leader immediately saw the benefit of using Learning Blade for their Career Academy Program. Learning Blade staff immediately traveled to Rocket City to provide in-person training to the motivated staff. Within five minutes of experiencing learning Blade as student teachers were hooked.



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