What is Learning Blade?

Learning Blade is an interactive STEM and Computer Science (CS) career awareness toolbox with:

- Over 200 hours of interactive, online and offline STEM and Computer Science activities that engage students by showing them how STEM and CS careers and technologies solve human-centered problems
- Additional coordinating lesson plans including hands-on projects, design thinking problems, 3D printing resources, coding activities, career videos and parent activities

*Learning Blade is used nationwide and adopted statewide in several states. Students have completed millions of lessons!*

Why Learning Blade?

*You can’t be what you can’t see!*

Career awareness is a necessary part of an effective STEM strategy.

Learning Blade:

- Addresses a major reason students do not pursue STEM or Computer Science… they do not know about the careers
- Demonstrates the relevance of academics to careers and is aligned to all states’ standards
- Provides minorities, girls, rural and other underrepresented students access to high quality STEM and Computer Science engagement

Need an Account?

Contact us at LearningBlade.com/Contact, or access Learning Blade through Clever’s single sign-on portal.

Follow us for tips and news: @LearningBlade

Need More Info?

Email us info@learningblade.com

Need Training or Help with Implementation?

Learning Blade offers FREE in-person trainings (for 5 or more) and webinars. Email us at info@learningblade.com to get scheduled.

For technical support email support@learningblade.com

Win a Free FlashForge® 3D Printer!

Learning Blade is proud to have 3D-printer sponsor, FlashForgeUSA, providing a FREE 3D printer (Adventurer 3) to schools who complete 5,000 online lessons in a single school year.

We have already awarded printers to many schools!

**WILL YOUR SCHOOL BE NEXT?**
SUCCESS IN STATE PROGRAMS

Learning Blade is offered statewide or broadly in several states, and has delivered over 1,000,000 online lessons in EACH of TWO states thus far. Over 50,000 Learning Blade lesson plans and resources have been downloaded as well!

Studies and independent research have shown these results:

- **71%** learned about new careers
- **140%** more likely to respond that they know what STEM workers do
- **59%** more likely to be interested in STEM careers
- **61%** increase in students interested in computer science careers

For more information on these results, please contact us at: info@learningblade.com

Selected as an Accomplished Program in the STEMworks database, indicating that Learning Blade has been independently reviewed and found to meet rigorous and results-driven design principles and implementation practices.

Validation from Battelle

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

Recognized by NREA as an effective means for bringing STEM career awareness and interest to rural schools.

AR Gov. Hutchinson announces statewide Learning Blade program.
The Learning Blade Toolbox is organized by 12 major “Missions” that challenge students through social-centered grand challenges. Each Mission contains a full set of online and offline activities.

- **Full Missions** each include 40 interdisciplinary online STEM and computer science lessons, and takes approximately 8-10 hours to complete.
- **Express Missions** are shortened versions of each full Mission, including 10 interdisciplinary online lessons, and takes approximately 2 hours to complete.

In addition to the robust online lessons, each Mission includes the following ready-to-use activities:

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**Interactive Lessons**
Over 400 online lessons connect more than 100 STEM careers and technologies to students’ academic skills, demonstrating real-world problem solving.

**Design Thinking**
Students use Design Thinking methodology to solve complex problems through brainstorming, collaboration, and the creative exploration of new possibilities.

**Challenge Projects**
Simple hands-on activities emphasize problem solving, critical thinking, teamwork and communication using readily-available materials.

**3D Printing Activities**
3D printing experiments and projects demonstrate STEM principles and provide students experience turning 3D designs into physical items.

**Career Videos**
Each STEM career addressed in our online lessons also includes a career introduction video presenting the career and its education pathway.

**Coding Activities**
Fun, interactive coding lessons introduce students to computer science and the development of problem-solving skills, logic, and creativity needed for success in career paths.

**Parent Discussions**
Parent-ready handouts stimulate STEM conversations at home, help fill ESSA requirements for parental involvement, and encourage research and simple at-home experiments.

**Papercraft Figures**
Each STEM career and technology is accompanied by a 3D papercraft figure students can assemble, helping internalize a knowledge of 3D shapes and offer a tangible reminder of the careers and technologies.
## Mission Description Career Clusters

<table>
<thead>
<tr>
<th>Mission</th>
<th>Description</th>
<th>Career Clusters</th>
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<tbody>
<tr>
<td><strong>Car Manufacturing</strong></td>
<td>Use modern manufacturing techniques to design and build a new concept car</td>
<td>Advanced Manufacturing, Industrial Engineering</td>
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<td><strong>Dolphin Rescue</strong></td>
<td>Help rescue and rehabilitate an injured dolphin, including creating an artificial prosthetic tail</td>
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<td><strong>Energy Sources</strong></td>
<td>Evaluate alternative or upgraded energy sources for a city that currently has an old coal-fired power plant</td>
<td>Energy, Environment</td>
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<td><strong>Entrepreneurship</strong></td>
<td>Set up a new business with a focus on entrepreneurship</td>
<td>Finance, Business</td>
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<tr>
<td><strong>Flu Outbreak</strong></td>
<td>Look at how health and IT professionals can use data warehousing and analysis to predict flu outbreaks using GIS and social media data</td>
<td>Information Technology</td>
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<td><strong>Fresh Food</strong></td>
<td>Consider methods to increase production of local foods in a community</td>
<td>Agricultural Science</td>
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<td><strong>Hack Attack</strong></td>
<td>Learn about methods to create and protect a website, apps and social media after a school's website and media are hacked</td>
<td>Computer Science, Communications</td>
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<td><strong>Haiti Orphanage</strong></td>
<td>Design and build an environmentally-sound orphanage for children left homeless by an earthquake in Haiti</td>
<td>Civil Engineering</td>
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<tr>
<td><strong>Heart Surgery</strong></td>
<td>Conduct heart surgery and therapy for a child with a heart defect; evaluate the use of artificial hearts or heart components</td>
<td>Medicine, Healthcare</td>
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<tr>
<td><strong>Lightweight Aircraft</strong></td>
<td>Design a lightweight and easily maintained aircraft for multiple roles and mission distances.</td>
<td>Aerospace, Manufacturing</td>
</tr>
<tr>
<td><strong>Rescue Robots</strong></td>
<td>Explore technology and techniques used for robotics design, such as sensors, electrical circuits, industrial design and computers</td>
<td>Electronics, Computer Science</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>Evaluate new transportation methods for a city with traffic congestion problem</td>
<td>Transportation</td>
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</table>

Each online portion of the mission introduces the student to the **Careers (Teammates)** and **Technologies (Tools)** that would be used to solve these challenges in real life.

- Learning Blade “**Teammates**” (green circles) are STEM and computer science careers that work to solve each mission. Teammates are also featured in our Career Videos, providing students an easy way to see many careers in action.
- Learning Blade “**Tools**” (orange circles) are STEM and computer science technologies that are utilized in solving each mission.

**Details of the online lessons for these Missions are shown in the following diagrams.**
**Car Manufacturing**
Use modern manufacturing techniques to design and build a new concept car.

**Career Emphasis:**
Advanced Manufacturing, Industrial Engineering

- **Automotive Designer**
  - Groundbreaking Design (Social Studies)
  - If You Can Dream It (English)
  - Making It Go – How an Engine Works (Science)
  - The Great Shape-Up (Math)
  - Automotive Designers Invent the Future of Transportation (Video)

- **Manufacturing Technician**
  - Communication in Manufacturing (English)
  - Get It Right – Calibration (Science)
  - Meeting Demand (Math)
  - Quality Assurance (Social Studies)
  - Learn About a Manufacturing Technician (Video)

- **Mechanical Drafter**
  - Aerodynamics in Action (Science)
  - From the Page to the Track (Social Studies)
  - Reality – The Simulation (English)
  - The Magic Number (Math)
  - Mechanical Drafters Work Through the Details (Video)

- **Safety Administrator**
  - Anatomy of an Accident (Science)
  - Crash Test Dummies (English)
  - Roof Strength Test (Math)
  - Safety in the Factory (Social Studies)
  - Safety Administrator Keeps You Safe (Video)

- **Welder**
  - Arcs to Sparks (Science)
  - Artistic License (English)
  - The Cost of Design (Math)
  - Forging Ahead (Social Studies)
  - Welders Assemble Our World (Video)

- **Expression missions only include these lessons.**

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**Dolphin Rescue**
Help rescue and rehabilitate an injured dolphin, including creating an artificial prosthetic tail.

**Career Emphasis:**
Biomedical, Veterinary Medicine

- **Biomedical Engineer**
  - Physics of Swimming (Math)
  - Students Driving Change (English)
  - The Bionic Man (Science)
  - What is a Biomedical Engineer (Social Studies)
  - Biomedical Engineers Use Technology To Improve Our Health (Video)

- **Machinist**
  - 3D Printing Technology (Math)
  - A Day in the Life of a Machinist (Social Studies)
  - Getting Into Shape (Science)
  - Modern Machining Technology (English)
  - Machinists Craft Our Modern World (Video)

- **Marine Biologist**
  - A Day in the Life of a Marine Biologist (English)
  - Jacques Cousteau (Social Studies)
  - Lessons from the Gulf Oil Spill (Math)
  - Whale Hunting (English)
  - Marine Biologists Preserve Our Aquatic Environments (Video)

- **SCUBA Diver**
  - Aquarium Underwater Laboratory (Science)
  - A Day in the Life of an Aquarium Diver (Math)
  - The History of Underwater Diving (Social Studies)
  - Coral Reefs - Our Underwater Rainforests (English)
  - Commercial Divers go to Great Depths (Video)

- **Veterinarian**
  - Advanced Surgical Care for Pets (Social Studies)
  - Calculating a Diet for a Dolphin (Math)
  - Modern Advances in Veterinary Care (Science)
  - The Perfect Habitat (English)
  - Veterinarians Care for Our Animal Friends (Video)

- **Expression missions only include these lessons.**
Energy Sources
Evaluate alternative or upgraded energy sources for a city that currently has an old coal-fired power plant.

Career Emphasis:
Energy, Environment

Entrepreneurship
Set up a new business with a focus on entrepreneurship.

Career Emphasis:
Finance, Business, Resource Management

Express missions only include these lessons.
**Fresh Food**
Consider methods to increase production of local foods in a community.

**Career Emphasis: Agricultural Science**

- **Agricultural Engineer**
  - By the Light of the Moon (Social Studies)
  - Grinding the Grain (Science)
  - Growing Green (English)
  - Why Waste Energy? (Math)
  - Agricultural Engineers Help Feed the World (Video)

- **Agronomist**
  - Around the Ground Crop Rotation (Science)
  - Criss Cross Hybrid Crops (Social Studies)
  - A Day in Life of Agronomist (English)
  - Time is Money (Math)
  - Agronomists Make Food Better (Video)

- **Food Assurance Technician**
  - Better Building Blocks (Science)
  - It’s Found in Food (Social Studies)
  - Making the Right Choice (English)
  - You Are What You Eat (Math)
  - Food Assurance Technicians Keep Us Healthy and Safe (Video)

- **Microbiologist**
  - Finding Your Fit (Social Studies)
  - Microbes and Disease – The Study of Microbiology (Science)
  - Tiny Dangers – To Eat or Not to Eat (Math)
  - When Food Goes Bad (English)
  - Microbiologist Focus on the Details (Video)

- **Veterinarian**
  - Antibiotics in Livestock (English)
  - A Day in Life of Large Animal Vet (Social Studies)
  - Getting it Right – Caring for Large Animals (Math)
  - Health Benefits of Humane Animal Treatment (Science)
  - Veterinarians Care for Our Animal Friends (Video)

- **Farming Equipment**
  - A Day to Pick a Day to Plant (English)
  - From Farm to Glass (Science)
  - My Tractor My Friend (Social Studies)
  - Water Your Work (Math)

- **Hydroponics**
  - Building a Hydroponic Garden (Math)
  - Explaining Hydroponics (Science)
  - Growing Our Lunch (English)
  - History of Hydroponics and its Benefits (Social Studies)

- **Living Livestock**
  - Free the Beef (Social Studies)
  - Room to Farm (Math)
  - The Food that Moos (English)

- **Improving Crop Yield**
  - Composting (Social Studies)
  - Growing Needs (Math)
  - Jack and the Beanstalk (Science)
  - Pesticide Use – Advantages and Disadvantages (English)

- **Organic Farming Methods**
  - Designer Plants – Plant Genetics (Science)
  - Entomologists – a Ladybugs Best Friend (Social Studies)
  - Maximum Efficiency, Minimum Space (Math)
  - Organic Food Argument (English)

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**Big Data**
- Big Data Technology (Science)
- Examining Data - Exponentially Expanding Exabytes (Math)
- They are Watching - How Social Media Gathers Data (Social Studies)
- What is Big Data? (English)

- **Computer Data**
  - Charles Babbage: the Father of Computing (English)
  - Chart It Up - The Best Way to Display Data (Math)
  - The Computer Age (Social Studies)
  - What is a CPU? (Science)

- **GIS - Geographic Information Systems**
  - The Geographic Approach (Science)
  - An Overview of Geographic Information Systems (Social Studies)
  - Spatial Math (Math)
  - Tracking Yourself with GPS (English)

- **Social Media**
  - Changing the Way We Communicate (English)
  - Extra! Extra! Read All About It (Social Studies)
  - Predicting the Future with Social Media (Math)
  - Social Media Networks (Science)

- **Vaccines**
  - Calculating the Appropriate Dose (Math)
  - How to Create a Vaccine (Science)
  - The History of Polio (Social Studies)
  - What is a Vaccine? (Science)

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**Anthropologist**
- Evolution of an Outbreak (English)
- Germs and Their Interactions (Science)
- Learning to Count – The History of Math (Math)
- What is Cultural Anthropologist? (Social Studies)
- Anthropologists Provide Insight Into Our Humanity (Video)

- **Computer Programmer**
  - Bits and Bytes (Science)
  - A Day in the Life of a Computer Programmer (English)
  - Programming Logic (Math)
  - The Information Age (Social Studies)
  - Computer Programmers – Writing the Future (Video)

- **Database Administrator**
  - A Day in the Life of a Database Administrator (English)
  - Adding It Up With a Program (Math)
  - Computer Languages (Social Studies)
  - Small Bytes – How Does a CD Work? (Science)
  - Database Administrators Keep Track of Critical Information (Video)

- **Epidemiologists**
  - History of Health Records (Social Studies)
  - How Does the Flu Spread? (Math)
  - Preventive Methods and Treatments of the Flu (Science)
  - What is an Epidemiologist? (English)
  - Epidemiologists Make the World Safer (Video)

- **Statistician**
  - A Day in the Life of a Statistician (English)
  - Mean Median and Mode (Math)
  - What is Statistical Modeling? (Science)
  - Stimulating Statistical Standards (Social Studies)
  - Statisticians Work as Data Scientists (Video)

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**Flu Outbreak**
Learn how health and IT professionals use data, GIS and social media analysis to predict flu outbreaks.

**Career Emphasis: Information Technology, Disease Management**

- **Big Data**
  - Big Data Technology (Science)
  - Examining Data - Exponentially Expanding Exabytes (Math)
  - They are Watching - How Social Media Gathers Data (Social Studies)
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  - Calculating the Appropriate Dose (Math)
  - How to Create a Vaccine (Science)
  - The History of Polio (Social Studies)
  - What is a Vaccine? (Science)

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Express missions only include these lessons.
Hack Attack
See how web development, apps and social media experts restore a school's website and media after being hacked.

Data Scientist
AI vs IQ (English)
Female Firsts in Computer Engineering (Social Studies)
It's All in the Stats (Math)
Mining For More Then Gold (Science)
Data Scientists are Statisticians (Video)

Information Security Analyst
Don’t Open The Door (Science)
If I Were a Hacker (English)
It Could Happen To You (Social Studies)
Spreading the Bugs (Math)
Information Security Analysts Secure Our Future (Video)

Software Engineer
Pushing the Limit (Science)
The Journey of 1000 Miles Begins with a Line of Code (Math)
The Language of Code (English)
The Power of Possibilities (Social Studies)
Software Engineers Make the Future Possible (Video)

UI-UX Designer
Creating a Visual Interface (Science)
Getting The Message Write (English)
Sizing Up the Competition (Math)
Translating our Meaning (Social Studies)
UI/UX Designers Create Digital Experiences (Video)

Web Developer
Oh Sweet Phi (Math)
The First Website (Social Studies)
The Story of a Site (English)
The Three Second Rule (Science)
Web Developers Build Our Digital Experiences (Video)

Career Emphasis:
Computer Science, Communications

Cloud Computing
How Big is Big? (Math)
It’s Not Just a Nimbus (English)
The History of Cloud Computing (Social Studies)
Protecting the Cloud (Science)

Cybersecurity
Are You A Target? (Social Studies)
Breaking the Language (English)
The Business of Security (Science)
The Math of Security (Math)

Mobile Applications
Design Your App (Science)
DIY App (Math)
Hot Spots Are Not (English)
Misdirection (Social Studies)

Robot Development Kit
Controlling Your World (Social Studies)
If You Build It (English)
Sensory Overload (Math)
Simple and Compound Machines (Science)

Social Media
Check Yourself (Science)
Driving The Traffic (Math)
To the Ends of the Earth (English)
Who is Watching You? (Social Studies)

Haiti Orphanage
Design and build an environmentally-sound orphanage for children left homeless by an earthquake in Haiti.

Architect
A Day in the Life of an Architect (English)
Amazing Architectural Art (Social Studies)
Designing an Orphanage (Math)
What a Hurricane Can Do To a Building (English)
Architects Design the Cities of the Future (Video)

Civil Engineer
Builder of a Civilized World (English)
Stand Your Ground with Surveying (Math)
The Best Type of Bridge (Science)
Wonders of the Modern World (Social Studies)
Civil Engineers Design our World (Video)

Electrician
A Day in the life of an Electrician (English)
Designing Electric Circuits (Math)
Electrifying Rivals: Edison vs Tesla (Social Studies)
Energy Use in the Home (Social Studies)
Electricians Bring the Power (Video)

Environmental Engineer
A Day in the Life of an Environmental Engineer (English)
Monitoring Our Air (Science)
Supplying Clean Water (Math)
Trash Troubles (Social Studies)
Environmental Engineers Keep Our World Clean and Healthy (Video)

Nurse
Calculating Antibiotic Doses for Children (Math)
Preventative Medicine for Children (Science)
Providing Medical Care in the 3rd World (Social Studies)
To Vaccinate or Not to Vaccinate (English)
Nurses Deliver Care (Video)

Career Emphasis:
Civil Engineering, Sustainability

Antibiotics
Antibiotics in Livestock (English)
How Antibiotics Work (Science)
The History of Antibiotics (Social Studies)
Calculating Antibiotic Doses for Children (Math)

Cell Phone
Cell Phone – Help When You Need It (English)
Designing a Cell Network (Math)
effects Cell Phones Society (Social Studies)
Inside the Cell Phone (Science)

Earthquake Science
An Earthquake Strikes Haiti (Social Studies)
Earthquake Safe Buildings (Science)
Measuring Earthquakes - The Richter Scale (Math)
The Great Alaskan Earthquake (Social Studies)

Green Buildings
Advancements in Green Building Technology (English)
Efficient Building Construction (Social Studies)
Energy Conversion Rates for Solar Panels (Math)
Geothermal Heating and Cooling (Science)

Water Purification
Determining Water Safety (Science)
Making Clean Drinking Water (English)
Natural Disasters and Disease in Haiti (Social Studies)
The Water Cycle (Science)

Express missions only include these lessons.
Heart Surgery
Understand heart surgery techniques and therapy used to treat a child's heart defect.

Biomedical Engineer
How Big is My Heart (Math)
Keep It Level – Sensors for Diabetic Patients (Science)
Students Driving Change (English)
What is a Biomedical Engineer? (Social Studies)
Biomedical Engineers Use Technology to Improve Our Health (Video)

Air Ambulance
A Bird with One Wing – How Helicopters Fly (Science)
Air Ambulance – Getting Off the Ground (Math)
Air EMT (English)
History of the Air Ambulance (Social Studies)

Doctors
Ethics and Modern Medicine (English)
Great Doctors in History (Social Studies)
Knowing your Numbers – Diagnostic Testing (Math)
The Respiratory System (Science)
Doctors Improve Quality of Life (Video)

Body Imaging
CAT Scans – Looking Inside You (Science)
Industrial Uses of Medical Imaging (Science)
Magnetic Resonance Imaging (English)
X-Rays – The Inside View (English)

Nurses
Blood – It’s Chemistry (Science)
Nurse Counseling (Social Studies)
Pediatric Nursing Care (English)
You Are What You Eat (Math)
Nurses Deliver Care (Video)

Heart Repair
History of Artificial Heart (Social Studies)
Keep up the Pace (Science)
Our Incredible Heart (Math)
Putting Your Heart at Risk (English)

Paramedics
Day in Life of A Paramedic (Social Studies)
Race Against the Clock (Math)
The Golden Hour (Science)
When Seconds Count (English)
Paramedics Provide Critical Response (Video)

Medical Technology
Anesthesics (Math)
How Antibiotics Work (Science)
New Discoveries in Medicine (English)
Robotic Surgery (Social Studies)

Therapists
Make it Move – Physical Therapy (Math)
Meeting Ralph – Dog Therapy (English)
Take a Swim – Aquatic Therapy (Science)
Work it Out – Occupational Therapy (Social Studies)
Physical Therapists Bring Healing and Recovery (Video)

Organ Transplants
Artificial Organs (Social Studies)
Foreign Bodies (Science)
We Got the Beat – Heart-Lung Machines (Math)
Organ Donation – Myth vs Fact (English)

Lightweight Aircraft
Design a lightweight and easily maintained aircraft for multiple roles and mission distances.

Industrial Designer
The Material Difference – New Materials in Product Design (Science)
A Day in the Life of an Industrial Designer (Social Studies)
Balancing Form and Function (English)
3D Modeling (Math)
Industrial Designers Develop Amazing Things (Video)

Aircraft
As the Crow Flies (Math)
Silent Flight (English)
The Solar Impulse (Social Studies)
The Plane Truth About Planes (Science)

Machinist
3D Printing Technology (Math)
A Day in the Life of a Machinist (Social Studies)
Getting Into Shape (Science)
Modern Machining Technology (English)
Machinists Craft Our Modern World (Video)

Automation Mechatronics
Digital Decision Making (Math)
Jack of All Trades (English)
Real Life Autobots (Science)
Why Now for Mechatronics? (Social Studies)

Manufacturing Technician
Communication in Manufacturing (English)
Get It Right – Calibration (Science)
Meeting Demand (Math)
Quality Assurance (Social Studies)
Learn About a Manufacturing Technician (Video)

Metals and Alloys
How Much Metal is There? (Math)
How to Make it with Metals (Science)
Out of the Iron Age – The History of Metals (Social Studies)
The Rarest of Metals (English)

Mechanical Engineer
Simple and Compound Machines (Science)
Mechanical Advantage and Efficiency (Math)
How Machines Advance Civilization (Social Studies)
A Day in the Life of a Mechanical Engineer (English)
Mechanical Engineers Design Tools (Video)

Modern Innovative Materials
Fabric 2.0 (English)
Flying Farther (Math)
Wear and Tear (Math)
Who’s Your Alloy? (Science)

Welder
Arcs to Sparks (Science)
Artistic License (English)
The Cost of Design (Math)
Forging Ahead (Social Studies)
Welders Assemble Our World (Video)

Recycling
Making the Argument for Recycling (English)
Save the Earth Through Recycling (Math)
Where Does Your Can Go? (Science)
Who Recycles the Most? (Social Studies)

Career Emphasis:

Career Emphasis:

Career Emphasis:
Rescue Robot
Explore technology and techniques used in robotics design such as sensors, circuits, industrial design and computers.

Career Emphasis:
Electronics, Computer Science

- Computer Programmer
  Bits and Bytes (Science)
  A Day in the Life of a Computer Programmer (English)
  Programming Logic (Math)
  The Information Age (Social Studies)
  Computer Programmers: Writing the Future (Video)

- Drone Operator
  Getting It Under Control (Science)
  A Day in the Life of a Drone Operator (English)
  The Right Tool for the Job – Drone Features (Math)
  It’s Automatic - History of Automated Machines (Social Studies)
  Drone Operators Use Robots to Inspect the World (Video)

- Electrical Technician
  A Day in the Life of an Electrical Technician (English)
  Electric Circuits (Science)
  Ohm’s Law (Math)
  Throwaway and Repairable Electronics (Social Studies)
  How Electrical Technicians Power the World (Video)

- Industrial Designer
  3D Modeling (Math)
  Balancing Form and Function (English)
  A Day in the Life of an Industrial Designer (Social Studies)
  The Material Difference (Science)
  Industrial Designers Develop Amazing Things (Video)

- Mechanical Engineer
  A Day in the Life of a Mechanical Engineer (English)
  How Machines Advance Civilization (Social Studies)
  Mechanical Advantage and Efficiency (Math)
  Simple and Compound Machines (Science)
  Mechanical Engineers Design Tools (Video)

- Camera Operators
  Cameras vs Privacy (Social Studies)
  Get Focused – Lenses (Math)
  I See You – Facial Recognition (English)
  Over the Rainbow - Electromagnetic Spectrum (Science)

- Computers
  A Supercomputer in Your Pocket (Math)
  Communicating with Computers (English)
  Making Memory (Science)
  The Computer Age (Social Studies)

- Electrical Circuits
  Printed Circuit Boards (English)
  Staying Alive (Math)
  Vacuum Tubes to Circuit Boards (Social Studies)
  Zap, Cracke, Pop! – Resistors and Capacitors (Science)

- Microphones
  Can You Hear Me? (English)
  Making Waves – Sound Waves (Science)
  Sound Bites – Microphone Technology (Social Studies)
  Turn it Up - Decibel Levels (Math)

- Sensors and Logic
  Digital Decision Making (Math)
  How Decisions Are Made (Social Studies)
  How We Machines Perceive World (English)
  Seeing with Sound – Sonar (Science)

Transportation Congestion
Evaluate new transportation methods for a city with traffic congestion problems.

Career Emphasis:
Transportation, Engineering

- Automotive Engineer and Technician
  A Day in the Life of an Automotive Engineer (English)
  Consumption Junction (Math)
  Fuel Cells (Science)
  Intelligent Roadways (Social Studies)
  Automotive Technicians Keep Things Moving (Video)

- Logistics Engineer
  Find It and Fix It (Math)
  Five Minutes Late (Science)
  Labyrinth of Logistics (Social Studies)
  The Text Heard Round the World (English)
  Logistics Engineers Get Things Done (Video)

- Mechanic
  Diesel Gas or Electric? (Science)
  Dr. Diagnosis (English)
  Engine Mechanics – What’s Your Specialty? (Social Studies)
  Hold Your Horses (Math)
  Mechanics Keep Our World Moving (Video)

- Transportation Engineer
  Building Blocks (English)
  Mix it Up (Science)
  The Master Plan (Social Studies)
  To Grid or Not to Grid? (Math)
  Transportation Engineers Move the World (Video)

- Transportation Planners
  An Ounce of Prevention (English)
  Drive or Dollars (Social Studies)
  Eye in the Sky (Science)
  Hurry Up and Go (Math)
  Transportation Planners Keep the World Moving (Video)

- Aircraft
  As the Crow Flies (Math)
  Silent Flight (English)
  The Hindenburg (Social Studies)
  The Plane Truth (Science)

- Automobiles
  Better Mileage & Better Safety (Science)
  Cars and Society (Social Studies)
  Home James – Self Driving Cars (English)
  Pay the Toll (Math)

- Hybrid and Electric Vehicles
  Braking the Car (Science)
  Government Policies and Electric Cars (Social Studies)
  Hybrid and Electric Vehicles – Are They Worth It? (Math)
  Range Anxiety (English)

- Public Transportation
  Busing It (Social Studies)
  Chemistry of Smog (Science)
  Pedal Power (English)
  What Floats Your Boat (Math)

- Trains
  Railroad Tracks – One Size Fits All (English)
  Riding the Rails (Social Studies)
  The Force is With You (Science)
  Worth the Ride (Math)
Career Awareness

Online lessons provide impressionable middle school students the benefits of broad exposure to STEM and computer science careers in any type of classroom, which:

- Demonstrates the direct relevance of academics to STEM careers
- Enables them to follow clear STEM and CS career pathways
- Helps make better-informed career choices when forming future self-image

“We are all defined by where we come from initially, and we are limited in scope and vision by what our parents have given to us. But, now they have a learning tool in school that can expose them to a new world of STEM courses, STEM opportunities, and STEM career paths.”

Governor Asa Hutchinson, Arkansas

Computer Science

Did you know:

- 9 in 10 parents want their child to student computer science, but
- Only 1 in 4 schools teach computer science

Learning Blade has over 100 lessons focusing on CS careers and technologies through the Hack Attack, Flu Outbreak, and Robotics Missions.

The Intro to Computer Science course enables students to learn about some of the most in-demand CS careers and technologies, like computer programmers, database administrators, information security analysts and more!

“Using Learning Blade, I have learned that the computer science area is a growing field that will provide a lot of future jobs.”

Student, Berryville Middle School, Arkansas

Academic Standards Support

Not only is Learning Blade appropriate for STEM-related and computer science classes, many schools use interdisciplinary lessons targeted at other subjects to supplement those classes. The lessons in Learning Blade:

- Align to all states’ standards
- Provide all teachers the opportunity to deliver a robust curriculum
- Give early finishers with extra time rigorous and academically supportive learning

“From a teacher's perspective, I love that all of the curriculum is actually already tied to all of the standards, which helps when the teachers are using [Learning Blade] as an elective in their classrooms.”

Amy Polanowski, Teacher, Sullivan Middle School, Missouri

Rural and Underserved Students

It is equally important for rural and underserved students to have the ability to access rich STEM content. That's why Learning Blade is:

- Increasing exposure to STEM careers, thereby, boosting learning outcomes
- Helps students learn about traditional “non-STEM” jobs that require STEM skills
- Being used by tens of thousands of rural students across the country

“Learning Blade helps rural students envision their role in the 21st century workforce all while reinforcing standards and academics in an engaging manner.”

Brandi Stroecker, Executive Director Tennessee STEM Innovation Network