STEM/Computer Science/CTE

Michele Linch, Ph.D. – State Director
michele@learningblade.com
501.766.3931

Thinking Media brings strong experience in similar education solutions.

Tennessee-based WBE, MBE and Small Business of the Year for Chattanooga

Creators of KeyTrain® and Career Ready 101® for ACT WorkKeys®, acquired by ACT

- Online basic skills enhancement curriculum

- Helped to create the National Career Readiness Certificate

- Used in approx. 15% of US high schools and in other agencies

- Managed 28 statewide contracts with over 4 million registered users

- Delivered 7.2 million lessons and 2.4 million hours used per year

- Statistically proven effective at raising basic skills test scores

We Have to Grow our Workforce from within AR

According to a **2016 US Business Roundtable Survey**, at least **95 percent of CEOs** reported that it was **difficult to find workers** with the skills needed to fill open positions. The pandemic has accelerated this need even further.

Rural areas are experiencing a dramatic shortage of skilled talent that can help to sustain high-wage industries.

Both **rural and urban students** often lack the experiences that demonstrate the type of high-skilled jobs that will be demanded in the future workforce.
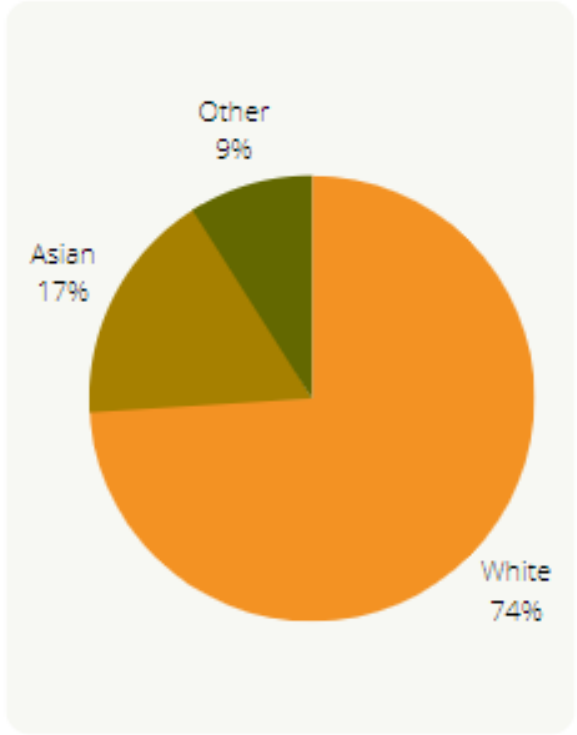
"You can't be what you can't see…"

Demand for STEM, computer science, career tech workers is growing,
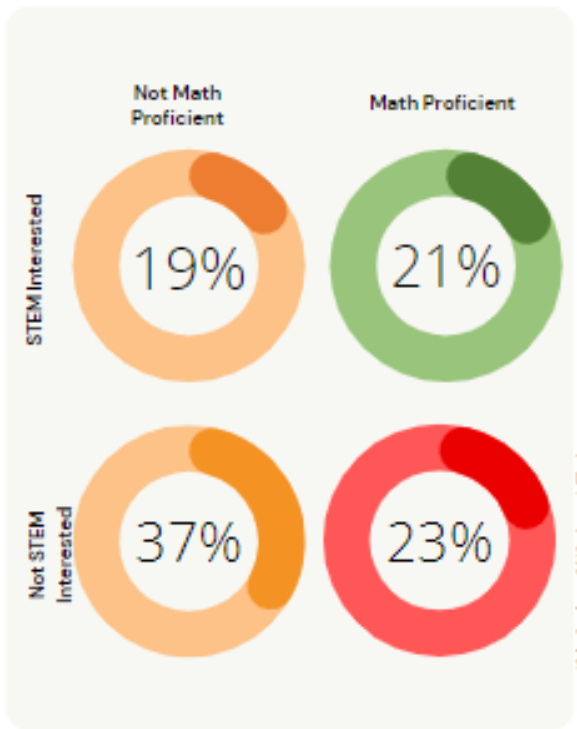## but participation by students is lacking.
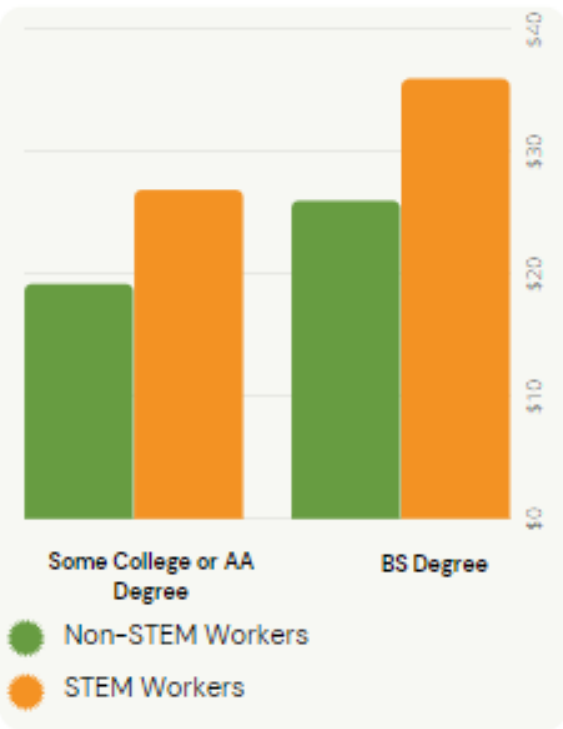
STEM Jobs pay more at **all levels**

Some College or AA Degree

BS Degree

$40
$30
$20
$10
$0

● Non–STEM Workers
● STEM Workers

Women are underrepresented in STEM

Minorities are underrepresented in STEM

Other 9%

Asian 17%

White 74%

23% of Students are prepared for STEM, but are **not interested**

Not Math Proficient

Math Proficient

STEM Interested

19%

21%

Not STEM Interested

37%

23%

10th Graders, 2013, From ACT, Inc.

Students need exposure to STEM careers as early as middle school.

No. 1 Reason Students do not
Major in STEM is
Lack of Awareness of Careers

94% Middle School Students Making
Career-Related Decisions

USA SNAPSHOTS®

Shaky on STEM

Nearly 42% of Americans say they would have considered STEM courses if they better understood the career path.

Note STEM stands for science, technology, engineering and mathematics

Source Emerson survey of 1,019 U.S. adults

TERRY BYRNE AND PAUL TRAP, USA TODAY

"Increasing Student Interest in Science, Technology, Engineering, and Math (STEM)" UMass Donahue Institute Research and Evaluation Group, 2011, as retrieved from http:www.mass.edu/forinstitutions/prek16/documents/Student%20Interest%20Summary%20Report.pdf

Thinking Media Resources Provide Lifelong Career Awareness

Scalable solutions that build awareness, interest and preparedness for high-demand careers

Thinking Media's Systems Provide Lifelong Career Awareness

	Career Blade	LearningBlade® STEM and Computer Science Career Awareness	READY FOR INDUSTRY
Format	Lesson Plans	Online and Lesson Plans	Online Lessons and Activities
Grades	K-12	5-9	10-Adult
Focus	Introduce high-demand careers: Optional- connections to local employers	Introduce STEM and CS careers through Mission-based activities	Provide incoming workers with the knowledge to select and be successful in high-demand industries

Learning Blade and Career Blade are registered trademarks of Thinking Media, a division of SAI Interactive, Inc.
Ready for Industry is a trademark of Thinking Media, a division of SAI Interactive, Inc.

Readying the Future Workforce

Ready for Industry Addresses Career Awareness for the Job Seeker

A new platform designed to address career awareness and preparation issues for the near-term job seeker – from late high school through adult.

RFI bridges two gaps that exist in the preparation of many potential skilled workers:

- What industry pathway do I want to pursue?

- What is the basic info that employers want me to know that I might not learn in school?

RFI provides separate 15-20 hour courses for each of the 5 highest-demand industries:

- Healthcare

- Manufacturing

- Information Technology

- Construction

- Logistics

RFI is *NOT* a replacement for technical training. It provides a context for post-secondary career search and training.

READYFORINDUSTRY

Ready for Industry –

We introduce students to CS and STEM Careers through "Missions".

Students

Learning Blade Missions

Teachers

Contextualized Learning for Students, Tailored to their Interests

Reinforcing Academic Standards while Providing Resources that ANY Teacher can use
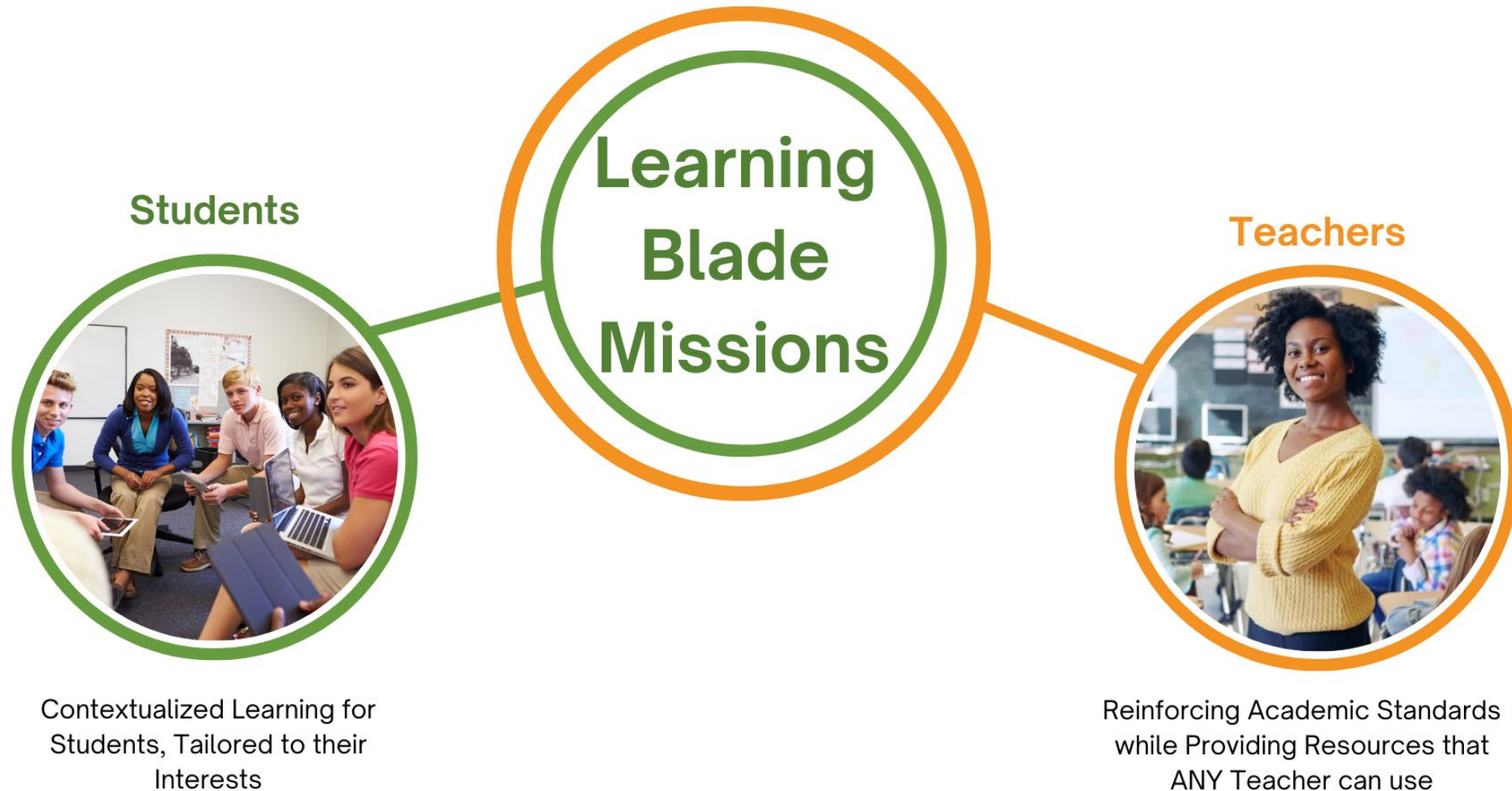
Each Mission includes an interactive toolbox of lessons and activities.

Interactive online lessons, ready-to-use lesson plans and activities for middle and high school students.
Can be used by any teacher, anywhere. Validated and proven to increase STEM/CS/CTE career interest.

Interactive Lessons
Over 400 online lessons tied to academic standards

Hands-On Projects
Mission challenges are project-based lessons using common materials

Design Thinking
Solve complex problems with the 5-step creative thinking process

Parent Discussions
Handouts and easy experiments for at-home discussions

Career Videos
Introduce over 50 careers with real-life people

3D Printing Activities
Create objects that demonstrate science principles

Intro to Coding
20 hour middle school course providing robust coding experiences

Papercraft Figures
Students make origami-type figures of 100 careers and technologies

"Missions" involve a societal challenge that interests students.

12

"Missions" that engage all students

Mission	Challenge	Career Clusters
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

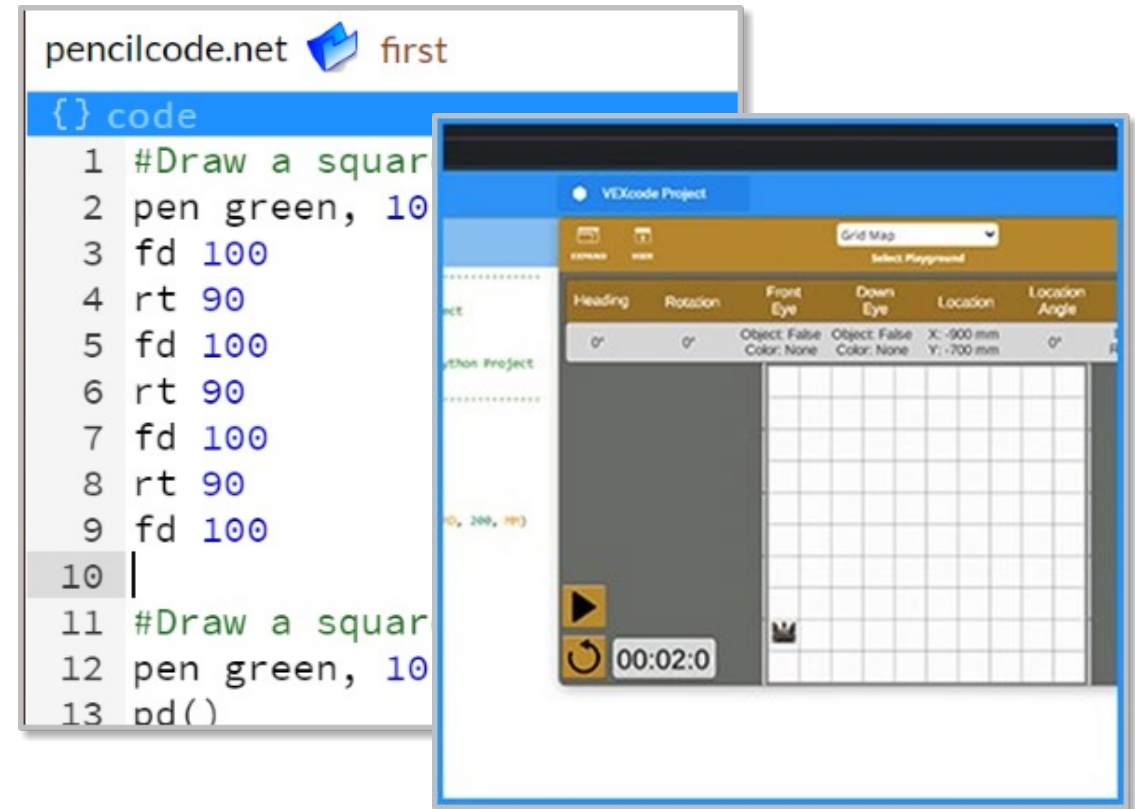# NEW for 2022! – *Introduction to Coding* Course

This 20-hour course provides everything you need to introduce students to computer science and real, text-based computer programming for MIDDLE SCHOOL!

Includes online lessons, group classroom activities, and complete lesson plans for guiding students through authentic coding experiences. Topics include:

- Computer hardware and software
- Simple algorithms and common statements
- Offline algorithm games
- Beginning programming
- Creating a simulated mobile app
- Concepts of cybersecurity and personal security
- Exploring common IT careers

"Having the Learning Blade tool in schools, students are exposed to the world of CS courses, CS opportunities, and CS career paths, and that is getting more students interested in CS jobs such as coding. The new "Intro to Coding" Block will continue to enhance what teachers can provide to their students."
Governor Asa Hutchinson

pencilcode.net first

```
{} code
 1  #Draw a squar
 2  pen green, 10
 3  fd 100
 4  rt 90
 5  fd 100
 6  rt 90
 7  fd 100
 8  rt 90
 9  fd 100
10
11  #Draw a squar
12  pen green, 10
13  pd()
```

Our results have been independently validated.

Student Survey Results Validated by Battelle:

- **55% Increase** in students who strongly agree that they are interested in a career in Computer Sci.

- **Doubling** the # of students interested in becoming an engineer and/or scientist

- **79% Increase** in students recognizing "*Math is helpful when solving interesting problems.*"

- **69% Increase** in students recognizing "*What I learn in school will be useful later in life.*"

- **56% Increase** in students interested in **taking advanced math classes** in high school.

Independent Ed.D. Research Results: Katherine Kendall, 2017. All items p<.001, N=276
Learning Blade users were more likely to intend to pursue STEM careers:

- **59% more likely** to be interested in a STEM career

- **84% more likely** to want a job that designs or builds things

- **140% more likely** to respond that they knew what STEM workers do

- **70% more likely** to be willing to like to talk about science with others

59% MORE LIKELY TO BE INTERESTED IN STEM CAREERS

140% MORE LIKELY TO RESPOND THAT THEY KNOW WHAT STEM WORKERS DO

70% MORE LIKELY TO TALK ABOUT **SCIENCE** WITH OTHERS

Results from Student Surveys

Selected as "Accomplished" in STEMworks database by WestEd by
meeting rigorous design principles and evaluation by independent reviewers

STEMWORKS

Learn more at http://link.learningblade.com/results

Career Blade for Arkansas
www.CareerBladeArkansas.com

Career Blade Launched February 2022!

Explore Career Blade at
www.CareerBladeArkansas.com

Career Blade is:

- A **FREE** resource for Arkansas educators to build **students' awareness and interest of the variety of careers** in your community and the **businesses that hire these careers**,

- A set of **classroom-ready lesson plans for K-12** that introduce these careers while reinforcing academic skills aligned to learning standards.

- A list of **contacts at local businesses** who are willing to interact with your school and students.

We Seek to Connect Students to Opportunities in their Own Communities

- **Teachers across all K-12 grades** lack the time and experience to help students understand today's careers.

- **Teachers are highly attracted to student-ready lesson plans** that support academic classrooms through group activities.

- If we could embed information on careers and local businesses in these classroom activities, we could **form a positive image of local businesses** in the minds of the future workforce.

How it Works:

Step #1:
Team Arkansas – Career Blade Staff, ARCTE and State and Local Chamber Work to Make Local Businesses Aware of Opportunities Career Blade Offers.

Step #2:
Businesses Complete Short Survey and Choose How They Are Able to Engage with Schools.

Step #3:
Teachers are Provided Access to Customized Career and Workforce-focused Lesson Plans that Contain Embedded Links of Local Career Blade Participating Businesses

Step #4:
Teachers Reach Out to Participating Businesses to Connect Students with Local Employers to Learn More from Local Business and Industry Employers

Inspired Students Become Motivated to Pursue Career Paths Available in their Communities!

Lessons Link Academics to Local Careers

Lesson plans are individually tailored to the grade level and local regions of the state.

Lessons include:

- Career Name and Description
- Student Self-Paced Academic Lesson
- Lesson Plan for Hands-On or Creative Thinking Problem Solving
- Career Connection – how the lesson connects to the career
- Salary and Outlook
- Academic Standards Alignment
- Local Connections – regional employers that hire this type of career

Making the Connection Between Students and Businesses

Lesson plans include specific contact and interaction opportunities:

- Guest speakers or Panelists (in person, at school)
- Guest speakers (virtually, via Skype / Zoom / etc.)
- One-day Field Trips
- Mentoring students
- Video or picture uploads
- Resume reviews, project feedback or interview preparation
- Volunteer opportunities
- Learning opportunities (i.e. unpaid job shadowing, externships, internships, etc.)
- Employment (i.e. paid internships, apprenticeships, co-ops, etc.)
- Career Fairs
- Curriculum support or experiential learning programs
- Sponsorships and/or equipment donations
- Product Donation

Career Blade – Informs Students of Local Careers

By Grade Range:

- K-2
- 3-5
- 6-8
- 9-12

By Local Career Blade Businesses

**By Industries**

By Careers:

- CNC Operator/Machinist
- Computer Programmer
- Database Administrator
- Data Scientist
- Electrician
- Farmer / Rancher
- Financial Analyst
- Industrial Maintenance
- Info Security Analyst
- Marketing Manager
- Nursing
- Production Manager
- Supply Chain Analyst
- Truck Driver
- Welder

By Economic Region:

- Central AR
- East AR
- Northwest AR
- Southeast AR
- Southwest AR
- West Central AR
- Western AR
- White River AR
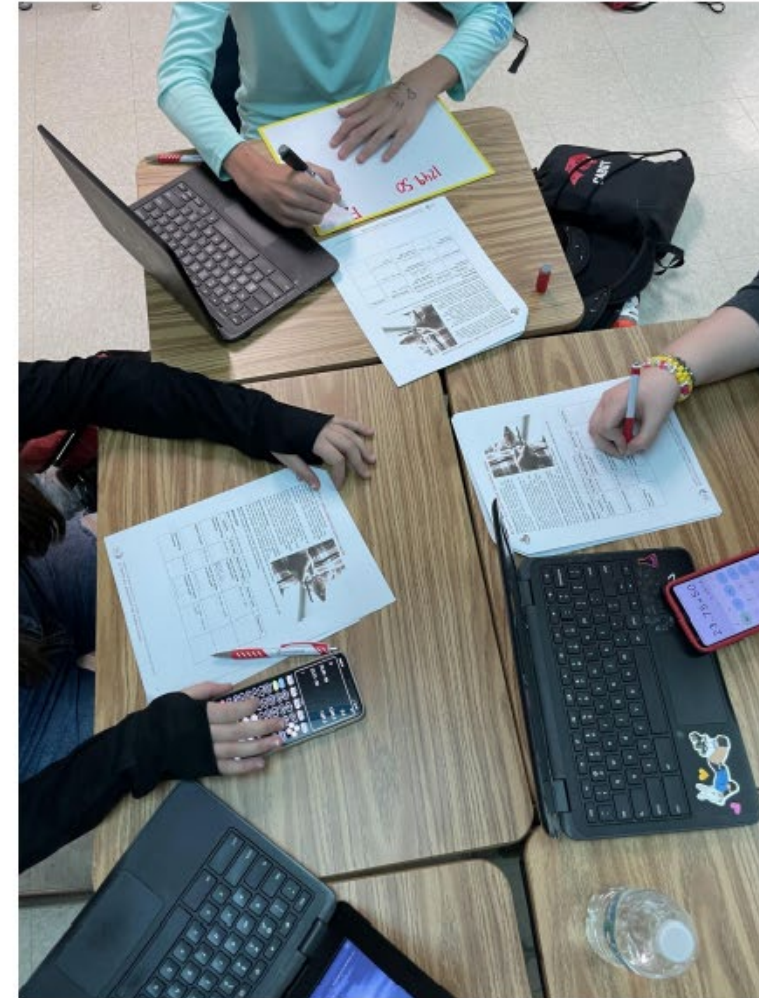
Career Blade in Action!

Fourth graders practicing their straight bead and weave bead welding techniques.
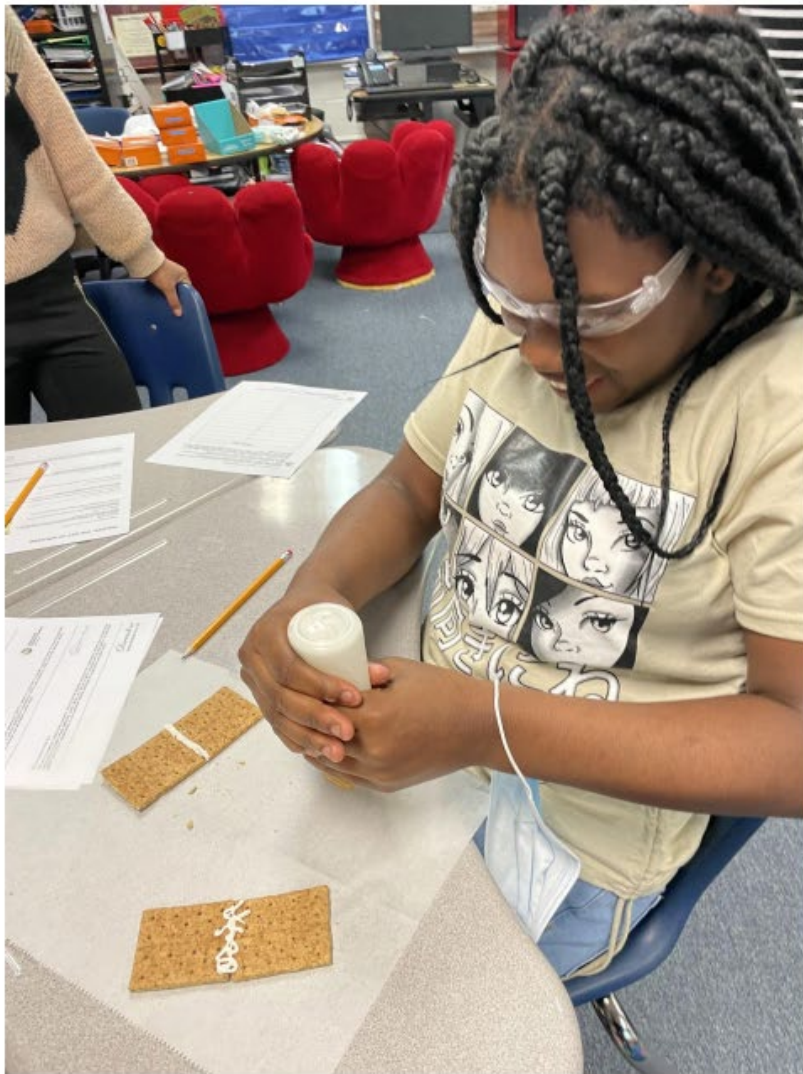
Career Blade in Action!

Kevin Tipton, President - Dreamline Manufacturing
Amy Youngblood, Career Development Teacher - CMSS
Michele Linch, State Director - Learning Blade and Career Blade

The Benefits

AR Chamber of Industry and Commerce and Local Chambers – Increases the value of the Chambers to business members by assisting businesses in increasing their visibility in their community and future labor market.

Local Businesses – Increases number of educators and students who are aware and have an appreciation of local business workforce needs. Increases the interest of students in becoming trained for the workforce needs of local business and industry.

Students – Connects students to high-demand, high-paying careers available in their own communities and encourages students to follow career pathways that will prepare them for these opportunities.

Teachers – Provides easy-to-use resources that allow teachers to communicate these high-demand career pathways to students in a way that builds STEM and academic skills that will prepare students for future success.

Off to a great start! Here's Just a Sample...

You Can Help Build Career Blade by asking Businesses to Fill Out the Survey

www.CareerBladeArkansas.com/BusinessSurvey

Explore Career Blade at
## www.CareerBladeArkansas.com

Testimonials in Tennessee

"*TN-CAPS is a valuable tool for us in Obion County as we look to train high school students for careers after graduation. The lesson plans and resources are easy to use and well aligned to several local industrial partners and have allowed us to better prepare students to be job-ready as they complete high school. The local employment opportunities available create real-world buy-in for students as they prepare for postsecondary careers.*"

George Leake, Secondary Supervisor of Instruction; CTE Director, Obion County

"*I LOVE this resource because the lessons align with our academic standards. If you had told me a year ago that I would have an already developed lesson on being a data scientist that included our math standards AND enabled students to explore Tennessee companies near us that had jobs in that sector, I would probably have laughed in your face. No one ever talked with me in my teacher prep program about doing career exploration, and I honestly didn't expect it because it's not something most people think about for early grades. So, I really appreciate the ability to use this with my students...and my principal loves it because it's free! Hats off to our state leadership for making this a priority.*

Amy Allen, KG Teacher, Copper Basin Elem; Polk County Schools
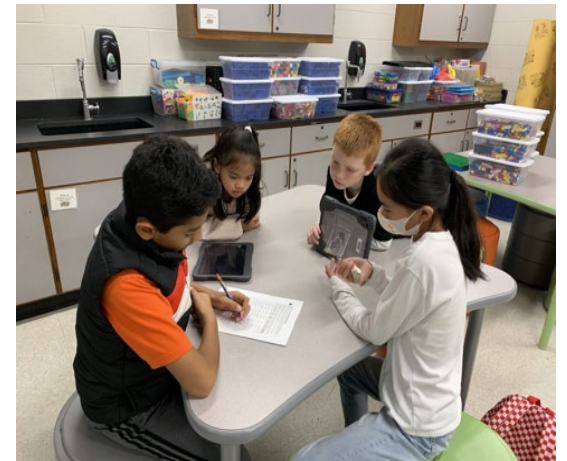
For more information, please email:

Michele Linch, PhD

State Director, AR-CAPS

Michele@learningblade.com

Or Info@learningblade.com