



2025 CTE Summer Swap Academy

*hosted by Maize Career Academy
facilitated by Kansas Center for CTE*



Middle School Computer Science

Developed for: Grades 5-8 STEM and Computer Science Teachers

In this hands-on workshop, you'll explore the world of Micro:bit and learn how to use these versatile microcontrollers to spark creativity in your students. Dive into the basics of Artificial Intelligence (AI) and discover how to introduce this exciting topic to middle schoolers, including strategies for formulating effective prompts. You'll also get the chance to create your very own visual AI using the Teachable Machine and learn how to empower students to design and code apps with MIT App Inventor. Whether you're new to these tools or looking to deepen your knowledge, this session will provide practical strategies and resources to enhance your STEM curriculum and inspire the next generation of innovators.

Specific topics that will be addressed:

- What are Micro:bits and how to use them?
- Strategies to introduce intermediate concepts of block coding
- What accessories/kits are available to use in tandem with micro:bits?
- What does AI mean? How to introduce it to middle school students? How to formulate prompts?
- Make your very own visual AI using the teachable machine.
- How to use MIT App inventor to code apps.

Participants will leave confident with how to use and teach with Micro:bits. hands-on coding lessons suitable for grades 5-8 will be provided throughout the two days. The lessons will cover introduction to computer science all the way up Artificial Intelligence topics and App Creation! Lessons will have suggestions on how to differentiate to meet the needs of all students, and include example projects with rubrics.

Participants will need to bring:

Lesson Swap: Time will be built in to share and trade your favorite lesson plan/activity **relating to** introductory coding skills, intermediate/middle school level computer science, and artificial intelligence. Please bring 15 copies of ONE lesson plan/activity!

Laptop & charger: to access information or videos as needed.

PPE: No PPE is required for this session.

Supplies: You do not need to bring any of your own supplies for activities. Just your lesson swap, charged laptop, and willingness to learn!



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About the Presenters

Ivy Daugherty is a passionate and dedicated engineering educator at Maize South Middle School, where she teaches Design & Modeling, Automation & Robotics, and Computer Science & App Creators to middle school students. In her third year of teaching, Ivy has quickly become known for creating an engaging, hands-on learning environment that sparks curiosity and fosters problem-solving skills. In recognition of her commitment to education and innovation, Ivy was honored with the prestigious Kansas Horizon Award, a recognition given to outstanding first-year teachers in the state. She thrives on helping students discover new ideas, navigate challenges, and build confidence in their abilities to create, invent, and think critically.

James Buchanan is a passionate 5th-grade STEAM educator at Maize South Intermediate School, and has been at the forefront of creating and developing our school district's STEAM program which is now in its second year. Drawing from hands-on experience in the classroom, he strives to continuously adapt and refine the curriculum to meet the evolving needs of our students. With a commitment to fostering curiosity and innovation, he aims to empower young learners through engaging, interdisciplinary learning experiences that inspire a lifelong love of discovery.