2024 CTE Summer Swap Academy
hosted by Maize Career Academy
facilitated by Kansas Center for CTE

2 days: June 3 & 4, 8:30 am to 3:30 pm
Lunch (on your own) from 11:30 to 12:30 pm both days

VEX V5 Robotics in the Middle School or High School Classroom
(Engineering and Applied Mathematics pathways)

presented by Zack Helgesen
Maize Career Academy, Robotics instructor
Maize Career Academy, Room H27

This session will provide participants with the opportunity to collaborate with other teachers from across the state to learn new skills relating to the VEX V5 robotics systems. The two greatest needs that teachers and coaches have identified are adding to their curriculum and projects toolbox and learning more about coding.

Curriculum Overview
We will go through the Maize Career Academy curriculum for a high school robotics course (very applicable for middle school as well). We will look at a variety of projects that are designed to teach students about the competencies for this class.

Lesson Plan Collaboration
Teachers will collaborate together to create and modify lessons and projects for their classroom. The end goal is that each teacher will leave with a pacing guide for their course and all the curriculum/resources needed.

Coding by Experience Level
We will break into 2 groups to learn how to code. The beginner's group will be learning in VEXcode (blocks) and the intermediate/advanced group will be learning how to use Visual Studio Code (C++ formerly VEXcode Pro). We will have a variety of VEX sensors available to code and work with. We will work through the basics with no prior understanding required, but participants are encouraged to come with questions and tasks that they would like to learn if they are more experienced.

Coding Projects Collaboration
Teachers will collaborate on various coding projects. Teachers will be given projects to work on to hone their skills but are also encouraged to bring their own problems and challenges that they want to work on. If participants want to bring a sample robot to code or work on, the facilitator will be happy to help with their project. We will also have sensors and equipment available if participants want to build something simple to work with.

Competition Q&A
There will be time allotted for participants to ask related questions about competition teams and how to get a VEX robotics competition program started or enhance existing programs

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Participants will need:

Lesson Swap: Time will be built in to enhance or create a new lesson/project. Participants should bring or have access to the curriculum that they use.

Laptop & charger: A Windows laptop is encouraged with VEXcode, and/or Visual Coding studio installed. Loaner laptops will be available if needed.

Personal VEX equipment: If participants have specific VEX equipment (sensors or robots) that they want to work with/learn more about, they should bring those as well.

Google Account: We will create a Google Classroom where resources will be shared and participants will be able to access that class throughout the year. If you don't have a district Google account, you may simply make a personal one.

About the Presenter

Zack Helgesen has been teaching math and engineering for 15 years. He started working with VEX robotics through PLTW over 10 years ago as well as coaching competitive teams. He also helped write the competencies for the KSDE CTE robotics course. He is now teaching at Maize Career Academy in USD 266 and has also been teaching part time with Maize Middle School and Maize South Middle School as part of his schedule. .

Bonus note!

Sensors: To help demo equipment for this session, we will be purchasing several VEX V5 sensors which will be given as door prizes to a few lucky participants at the end of the second day!