Computer Science

This course is designed to expand the knowledge of both new and experienced AP Computer Science A (APCS A) teachers. It will focus on the required course content, available resources, and teaching strategies for use in the APCS A classroom. Additionally, participants will receive information about the structure of the APCS A exam, the APCS A Course Description, and the APCS A Reading.

This workshop will focus on the recommended APCS A Labs, along with other difficult APCS A concepts. Participants will engage in the hands-on activities and discuss options of how to best implement them in the classroom. Opportunities to engage in hands-on activities involving traversing arrays and Lists, String processing, and recursion will be provided.

Syllabus

Day One

- Introduction and Expectations
- APCS A Course Description
    - AP Equity and Access
    - Goals of the Course
- APCA A Syllabus and Course Audit
- APCS A Course Materials and Programming
- IDEs
- APCA A Online Resources

Day Two

- Magpie
    - Conditional Statements
    - Iterative Statements
    - The String Class
    - Arrays
    - String Processing
- PictureLab
    - 2D Arrays – Structure and Traversals
    - Image Processing Algorithms using 2D Arrays of Pixels

Day Three

- Elevens
    - Object Oriented Principles
    - Encapsulation
    - Inheritance
    - Polymorphism
    - Classes, Interfaces, and Abstract
    - Array, List, and ArrayList Algorithms

Day Four

- Array Traversal
- String processing
- Recursion
- APCS A Reading
- Mock APCS A Reading
- Q&A
- Wrap up and evaluation process

R. Travis Burton holds a Bachelor of Science from Texas A&M University and a Master's degree in Education from the University of North Texas. After leaving a career in the private sector as a project manager, Mr. Burton became a computer science teacher at Samuel Clemens High School in Schertz, Texas. A large school, by Texas standards, Samuel Clemens High School educates students from a variety of backgrounds. There, Mr. Burton has found success teaching this diverse group of students the fundamentals of computer programming among other subjects such as AP Art History and AP Statistics. Mr. Burton regularly attends the AP Computer Science A Reading, currently held in Kansas City, Missouri, to collaborate with his peers.