Computer Coding Instruction at Council Rock

Computer programming, or coding, is getting a lot of attention in the news media, thanks to the public's growing interest in computer and smart phone apps. School districts around the country and world are implementing coding into their curricula at younger ages to provide students with information and skills to capitalize on current and future marketplace needs. Citizens For Education recently sat down with Joy McClendon, CR's Director of Elementary Education, to assess where Council Rock stands with respect to computer coding education. Joining us were Matt Frederickson, CR Director of Information Technology; Laura Follmer, CR Library Coordinator; and Kevin Mallalieu, CR Tech Education Curriculum Coordinator.

CFE was interested in CR's coding culture, i.e., whether the administration deems coding an important skill for CR students to possess and whether there are professional development opportunities for teachers to expand their knowledge about coding. Mrs. McClendon stated that computer coding was a "very important" skill for CR students to attain. She and her team went on to describe how coding is currently being taught in our district:

- At the high school level, Accelerated Computer Science 1 and 2 run as combined classes at both North and South, where students learn the C# (C-sharp) programming language. AP Computer Science, which teaches Java, is currently a shuttled course that runs only at North. Robotics classes also use web-based programming, and students participating in certain extracurricular clubs, such as NASA HUNCH, do extensive coding at an advanced level.
- Middle school students take 6 weeks of computer class where they learn Windows software such as PowerPoint and Excel, as well as introductory website design. Some teachers, such as Joe McNulty at Newtown Middle School, use differentiated instruction to take each student to the next level of their knowledge. For example, a student who is already proficient with the basics of Excel spreadsheet design may get instruction on how to do Visual Basic Application scripting within Excel.
- Coding at the elementary level is sporadic in that there is no formal instruction program, but several teachers with coding interest and expertise are introducing coding to their students. Scratch, an MIT-developed object-oriented program, is available on all school computers, and it is used in some way at all of the elementary schools. At least one school, Goodnoe Elementary, has introduced Scratch to every student, and several extracurricular clubs that teach coding are active at the elementary level. Scratch programming is also used to make animation movies that can be entered into the Elementary Media Festival scheduled for June 2, 2015. Teacher training of coding concepts is available through Scratch workshops during the district's "Deep Smarts Day" teacher in-service held each January.

Mrs. McClendon would like to see more students exposed to coding at earlier ages. One CFE suggestion the district will explore is if Scratch education can become more formalized as part of the once-a-week Computer Special each elementary class has in its school's computer room. This year, the district has a full-time STEM consultant, Mr. Timothy Duke, whose position was funded from a combination of corporate, state, and Council Rock Education Foundation grant monies. Mr. Duke works to raise the rigor of science and embed more technology at the elementary level. Making this position permanent or reinstating the Technology Education Specialist positions that were eliminated 5 years ago could help to advance education in coding for all students, and CFE strongly supports such a move.

For students and teachers interested in increasing their knowledge, there are free programs and curricula available at www.code.org and www.csedweek.org. Individuals and groups are encouraged to participate in a global Hour of Code during Computer Science Education Week, December 8-14, 2014, that is expected to attract tens of millions of students from 180+ countries.

Mrs. McClendon thanked Citizens for bringing the importance of computer coding to the attention of the District, and Citizens will publish specifics about current projects related to coding and any future plans the district is formulating in future articles.