COPPER COUNTRY CODERS
Teaching Middle and High School Students Programming

Schools with Copper Country Coders Students
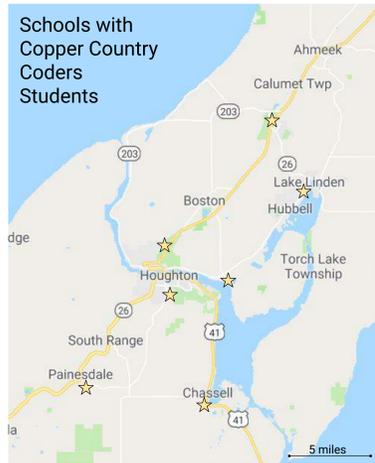
The Problem

K-12 schools in Michigan have almost no computer science curriculum and limited opportunities for students to explore computer science outside of their classes. The situation is bleak in disadvantaged rural areas. *It is imperative that computer scientists take action to reverse this trend.*

In rural Houghton County, the "Copper Country" of the UP, there aren't a lot of opportunities for students to learn about CS so we leverage the talents of Michigan Tech undergraduate students who work as tutors.

What's Our Goal?

Through CCCoders, students are taught a variety of programming skills by university students with the eventual goal that they will continue to program either for fun or professionally in the future. Through the program the students are also able to see how they could use computer science, especially through the undergraduate tutors.

Our goal is to create an environment where everybody learns - not just the middle and high school students, but also the Michigan Tech undergraduate tutors, who learn how to communicate as an instructor and how to put together a plan for learning.

Learn How to Code!
Middle & High School Students. All skill levels welcome
Copper Country
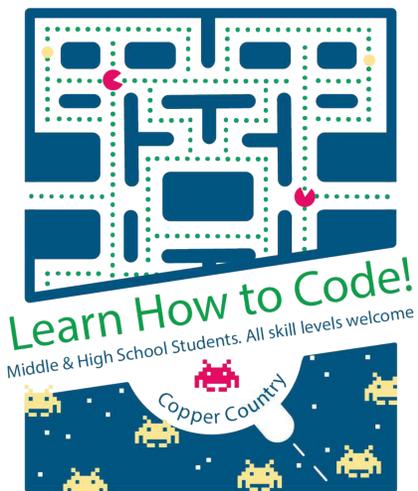
Who We Are

Copper Country Coders (CCCoders) is an undergraduate organization at Michigan Technological University dedicated to teaching a variety of computing topics to students in grades 4-12 from the surrounding school districts. Each year we have 40-50 students and 8-10 undergraduate tutors.

How We Do It

- Undergraduate Teachers
  - Design a course they want to teach
  - Write the lesson plans for the year
  - Define what learning goals we have for the students
- Weekly classes
  - Every Saturday on Michigan Tech's campus
  - Total of 21 weeks of classes

Beginner Level Groups

- Programming is a Snap!

Learning Goals:
- Understanding coding concepts including variables and loops
- Using methods to shorten code and avoid global variables
- Expanding upon given code to make it your own

Mid-Level Groups

- Visual Programming With Processing
- Playing With Processing and Java

Learning Goals:
- Understanding mid-level coding concepts including 2-dimensional arrays and objects
- Writing pseudocode before programming
- Being persistent with debugging

High Level Groups

- Java Game Development
- Modding Minecraft: Java Edition
- Website Design with HTML, CSS, and JavaScript

Learning Goals:
- Working to program with a team
- Understanding the importance of version control
- Using pair programming to solve problems

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