EMS CODING CLUB

10/05/2022

What's in this session?

Club Goals

Club Activities

Competitions

How to join?

Volunteer / Coaching opportunities

Goals

Inspire
- Get students interested in computer science

Learn
- Programming, Computational thinking, Computer Science concepts

Build
- Projects based on interest

Participate
- Coding competitions

Current registrations

- Students registered: 39
  - Beginners: 24
  - Advanced: 15

- Parent volunteers: 5

  - Please note: There is a $10 fee to join the coding club.

Beginners Group

Example topics that will be covered

- Language syntax
- Comments
- Variables
- Data Types
- If...Else statements
- For Loops
- While Loops
- Lists
- Tuples
- Sets
- Dictionaries

Advanced Group

Example topics that will be covered

- Functions
- Arrays
- Classes/Objects
- Inheritance
- Iterators
- Modules
- File Handling
- Pygame
- Numpy
- Intro to machine learning

Club Activities - 1

Introduction to Computational Thinking

- Various stages of computational thinking
- Decomposition, Pattern recognition, Abstraction and Algorithm

Programming Concepts (Python used as a primary language)

- Variables
- Control Structures
- Data Structures
- Syntax
- Tools

Club Activities - 2

◦ Project based learning (https://projects.raspberrypi.org/en/projects)

  ◦ What a typical club meeting will look like?

    ◦ 10 min Project background

    ◦ 35 min Coding

    ◦ 10 min Sharing

    ◦ 5 min Reflection

◦ Example projects:

  ◦ *Create your own rock, paper, scissor game* (Introduces variables and conditional statements)

  ◦ *Secret Messages* (Encryption program that introduces iteration (looping) over text string)

  ◦ *Fetching the weather* (HTTP requests, RESTful APIs)

  ◦ *Password generator* and many more

Competitions

- **American Computer Science League (ACSL)**

  - **Junior / Intermediate Division** - Each contest consists of an online 30-minute, 5-question short answer test and an online programming problem to solve in 72 hours.

  - There are four contests during the regular season. The window during which each contest can be accessed on HackerRank is as follows.

    - Contest #1: available Oct. 31, 2022; closes Sunday January 15, 2023 @ 11:59pm EST
    - Contest #2: available Dec. 26, 2022; closes Sunday March 5, 2023 @ 11:59pm EST
    - Contest #3: available Jan. 30, 2023; closes Sunday April 9, 2023 @ 11:59pm EDT
    - Contest #4: available March 6, 2023; closes Sunday May 14, 2023 @ 11:59pm EDT

  - Based on the scores during the regular season, top students in all divisions will be invited to participate in an online Finals competition:

    - Invitations E-mailed: May 1, 2023 through May 16, 2023
    - Invitational Finals: Saturday, May 27, 2023 (Memorial Day weekend in the United States)
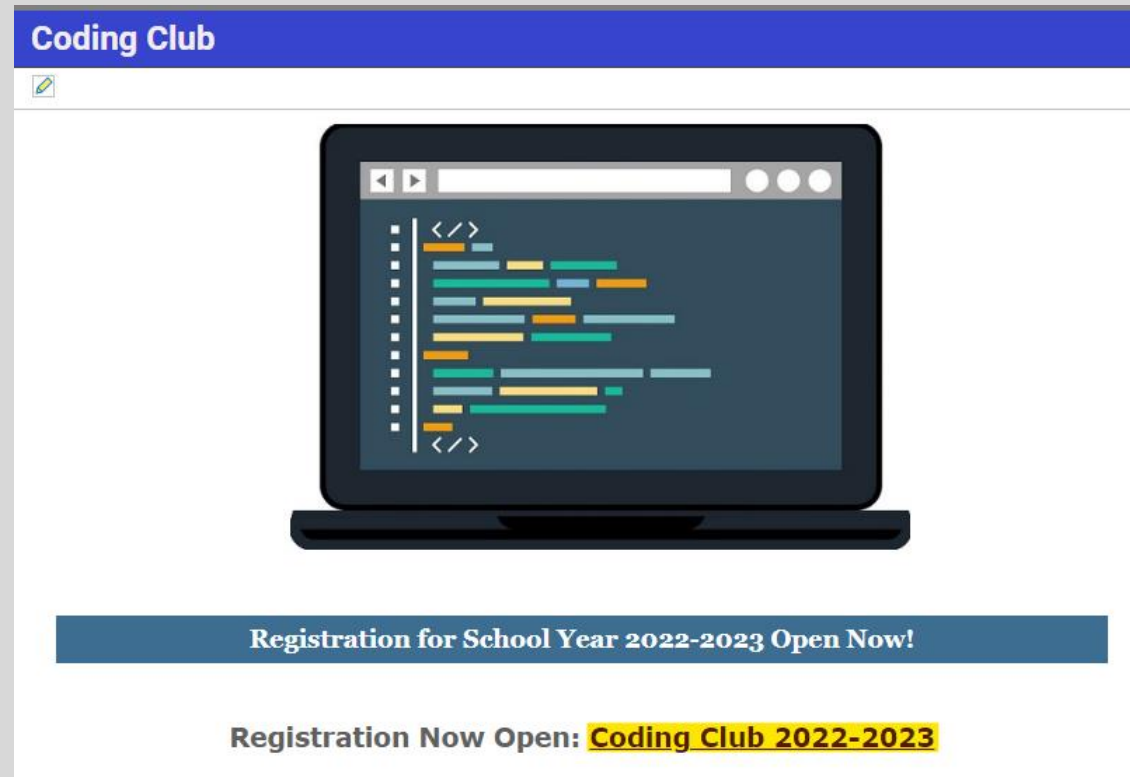
Competitions

- **Bebras Computing Challenge** (First round: November 7 - 23, 2022)

  - The Bebras challenge is designed to help students explorer their talents and passion for informatics and computational thinking with engaging challenges.
    - Benjamins (age 10-12) / Cadets (age 12-14) - Each group will get 3 sets of 5 tasks. The 3 sets each have a level of difficulty: easy, medium or hard. They will have 45 minutes to complete the tasks.

- **Congressional App Challenge**
  - Students create and submit their original apps for a chance to win

- **Hackathons**
  - **Code day (https://www.codeday.org/)**

Things to note!

◦ Students need to use their own device (separate from school computer).

◦ Club meetings will be virtual for now.

◦ Club meetings will be weekly. Every Wednesday 6:00pm – 7:00pm.

How to register?

◦ Go to the EMS PTSA website: https://evergreenptsa.org/Page/Enrichment/CodingClub

Coaches and Volunteers

Thanks to all who put their name for volunteering!

Coaches' jobs:

- Teach a programming concept
- Lead a project
- Guide students to participate in competitions

Other Volunteer jobs:

- Help kids with their technical issues
- Help with checking kids work
- Administrative work (register teams for competitions etc.)
- Others as needed

Club chairs

◦ Club Co-chairs:

  ◦ Raina Lodha (raina@evergreenptsa.org)
  ◦ Dustin Green (dustin@evergreenptsa.org)