Educational Video Games

Computational Thinking

4/9/19
http://www.cs.bsu.edu/cs4ms/docs/EduVideoGames.pdf

Video games are a great example of many basic concepts of computer science. For example, programming and debugging can easily be demonstrated through understanding video games. Programming is the act of writing code, or instructions for a computer. Debugging is checking code for errors.

Games such as Minecraft, Counter-Strike, Overwatch, NBA 2K and Fortnite are created by computer scientists. A programmer wrote code for the keys pressed to complete certain tasks in the game. Computer scientists and programmers are vital to the success of a video game. Many higher-education institutions have classes dedicated to game development. Video games are a significant part of computer science.

Minecraft

Minecraft is a great game which relies on computer science topics. The organization Hour of Code has an educational version of Minecraft that teaches the basics of programming using blocks in the game. It is not free of charge, but it is an excellent teaching tool otherwise. More information can be found at https://code.org/minecraft.

There are many other online games dedicated to teaching coding and computational thinking to young students. A list of games can be found at https://skillcrush.com/2017/04/03/free-coding-games/ .
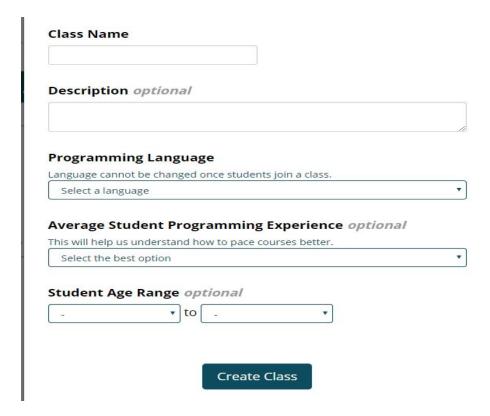
Code Combat is an online game that teaches students basic concepts of programming. Students complete levels by finishing tasks by writing code.

Teachers can easily monitor their students' activities. Instructors can also create in-class competitions that will boost the students' participation. Code Combat also has resources for the teacher in order to better understand coding themselves.

How to Get Started:

1. Go to www.codecombat.com
2. On the right side of the screen, click "Teachers."
3. After clicking "Teachers," there should be second screen that asks you to create an account.
   a. Create your account.
4. You will then be prompted to create a class.
   a. In the textbox under "Programming Language," select "Python."

Class Name

Description *optional*

Programming Language
Language cannot be changed once students join a class.

Select a language ▼

Average Student Programming Experience *optional*
This will help us understand how to pace courses better.

Select the best option ▼

Student Age Range *optional*

- ▼ to - ▼

Create Class

5. After creating your classes, you can navigate through the website.