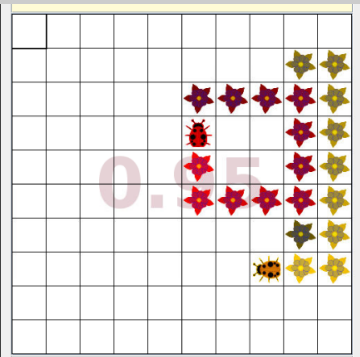## Why Study Computer Science at Patchogue-Medford High School?
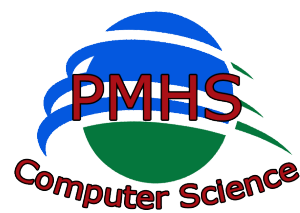
- *PMHS AP Computer Science students have received up to 8 credits at highly competitive colleges & universities.*

- *Programming is a basic skill needed for careers in science research and information technology jobs.*

- *Smaller class sizes and computer labs make learning Computer Science easy. At the college level large lecture halls make learning Computer Science very difficult.*

- *Web Design knowledge has become a tool needed for college projects and presentations.*

- *Taking Computer Science classes helps to differentiate the student in the highly competitive college application process.*

Sample Grid World (Data Structures)

Sample Alice Project

PMHS Computer Science

Patchogue-Medford Schools
241 South Ocean Avenue
Patchogue, NY 11772

Computer Science at PMHS

Louis Stellato
Director of Secondary STEM 6-12, Science & Math

631-687-6412
lstellato@pmschools.org

For more information visit the High School website and view the Program of Studies at **pmschools.org**

Computer Science Courses 2023—2024 School Year

3600 - Animation Programming & Game Design

1 Credit
Grades: 9, 10, 11, 12
Prerequisite: *80+ average in Math 8R*

Students will explore the exciting world of computer programming by being introduced to fundamental programming concepts using the high-level language of ALICE, and Game Design using Javascript.
Semester 1: 3D Animation with Alice Programming – Concepts
Semester 2: Game Design Using JavaScript

3610 - Website Design and Programming In Java

1 Credit
Grades: 9, 10, 11, 12
Prerequisite: *80+ average in Algebra I*

This course is designed for students interested in coding and designing websites and learning the internet programming language Java. This course is designed for students interested in coding and designing websites and learning the internet programming language Java. **This course is a prerequisite for the Advanced Placement Programming course and therefore is considered college preparatory and a great senior year course.**

Semester 1: Website Design/HTML5/CSS
Semester 2: Basics of Java Programming (AP Prep)

3620 - AP Computer Science

1 Credit
Grades: 10, 11, 12
Prerequisite: *Instructor Approval Required*

This course is equivalent to a first semester college-level Computer Science course. Problem solving and algorithm design will be emphasized. Basic computer programming concepts of input, output, conditionals, looping, functions, sorting, searching, advanced data structures and object oriented programming with classes will be covered. **The programming language used will be Java. College credit may be received for grades of three or higher on the Advanced Placement examination taken in May.**

Any Junior in any honors-level math class is permitted to take this course without the web/java prerequisite.

3630 - AP Computer Science Principles

1 Credit
Grades: 11, 12
Prerequisite: *AP Computer Science or Advanced Data Structures*

This course is a full year college level Computer Science course. AP Computer Science Principles introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology can impact the world. The course covers a broad range of topics such as programming, algorithms, the Internet, big data, digital privacy and security, and the societal impacts of computing. With a unique focus on creative problem solving and real-world applications, AP Computer Science Principles prepares students for college and future careers in any STEM discipline. Students will use **App Inventor** to solve real world problems by developing Android APPs. A multitude of colleges have signed on to grant college credit for a passing grade on the AP exam. **All students enrolled in this class are expected to take the College Board AP exam which includes a two performance tasks that will be submitted as part of their exam.**

3640 - Advanced Data Structures

1 Credit
Grades: 11, 12
Prerequisite: *Instructor Approval Required*

It is possible to take Honors Computer Science and Advanced Placement Computer Science simultaneously with instructor approval. This course is equivalent to a second semester college-level programming course. This course is a formal in-depth study of algorithms, data structures (including dynamic structures) and object oriented programming using the Java programming language. Topics will include pointers, advanced sorting and searching, trees and linked lists. Students will also learn advanced Graphical User Interface programming using Java Swing components. This type of programming is a precursor to App development.

3625 - Principles of Cybersecurity

1 Credit
Grades: 11, 12
Prerequisite: *Web/Java OR AP Computer Science A*

Students will be introduced to the Principles of Cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate the diverse high-skill, high-wage, and high-demand career opportunities in the field of cybersecurity. Information theory computational complexity, number theory, and algebraic approaches will be covered. Students will learn basic SQL and JavaScript and will utilize basic HTML and JavaScript so they can write and analyze code that demonstrates specific security development techniques.

Are you interested in learning more about our programs? Scan the QR Code below and you can explore any of the links underneath:
Computer Science At PMHS

SCAN ME

**If you have any further questions please feel free to email either of the teachers listed below.
We hope to see you soon!**

Just another lazy beach day…

Java Graphics Project

Computer Science
At PMHS

Meet the Teachers:

Mrs. Cindy Moshman-Southworth
cmoshman@pmschools.org

Mrs. Brown
mtbrown@pmschools.org