

AP Computer Science A (Advanced)



General Description

Computer science A embraces problem solving, hardware, algorithms and perspectives that help people utilize computers to solve real-world problems in everyday life. Topics include problem solving, design strategies and methodologies, data structures, inheritance, and polymorphism.

By the end of this course, students will be able to:

- ☐ Use and implement commonly used algorithms and data structures.
- ☐ Develop and select appropriate algorithms and data structures to solve new problems.
- ☐ Write solutions fluently using the object-oriented paradigm
- ☐ Write, run, test and debug solutions in the Java programming language
- ☐ Read and understand programs consisting of several classes and interacting objects

Prerequisites

This course requires a strong foundation in English and mathematics. Students must be comfortable with functions as well as logical and relational structures. Prior computer programming experience is not required, but AP Computer Science Principles is highly recommended.

Teaching Strategies

They include coding lectures (We code together), video lectures, daily programming exercises, longer coding assignments, and regular assessments. Students will also participate in group work to solve “free response question” practice problems in class. By the end of the course, students will be well prepared to take the AP® Computer Science A exam.

Each lesson listed below includes practice exercises, including shorter coding problems. Well over 20 hours of instructional time is spent in hands-on coding using the course coding exercises, lab assignments and AP labs.

Course Outline

The course includes the required content organized into the following units based on the AP Course and Exam

Unit 1: Primitive Types	Unit 6: Array
Unit 2: Using Objects	Unit 7: ArrayList
Unit 3: Boolean Expressions and “if” Statements	Unit 8: 2D Array
Unit 4: Iteration	Unit 9: Inheritance
Unit 5: Writing Classes	Unit 10: Recursion

Grade breakdown

Activities	60%
Assessments	20%
Assignments	20%



Where to check for grades? <https://projectstem.org/>

[All students have a username and password, or a Google account, which they use everyday to access the JAVA platform]

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