

AP Computer Science Study Guide

Are you preparing for the AP Computer Science A exam? This study guide covers exam basics, what's covered on the exam, and how to prepare for the exam.



To access practice tests, check out [Peterson's AP Computer Science test prep](#).

Exam Basics



- **Test time:** 3 hours
- **Section I of the exam:** 40 multiple-choice questions; 50% exam weighting; 90 minutes to complete.
- **Section II of the exam:** 4 free-response questions; 50% exam weighting; 90 minutes (including one 15-minute reading period) to complete. It's recommended to spend 40 minutes per essay.

The exam assesses the following content:

1. Modularity
2. Variables
3. Control

What's on the AP Computer Science Exam?



Primitive Types

- Primitive data types including int, double, and Boolean
- Evaluating arithmetic expressions in program code
- Using assignment operators to produce a value
- How variables and operators are sequenced and combined in an expression to create a result

Exam weight: 2.5 - 5%

Using Objects

- Objects and classes as ways to describe instances, attributes, and behaviors
- Creating objects by calling constructors with and without parameters
- Utilizing class libraries, including Integer and Double
- Defining an object's behavior using methods, including static and Math class
- Calling non-static void methods with and without parameters
- Using String objects and methods
- Using application program interfaces (APIs) and libraries

Exam weight: 5 - 7.5%

Boolean Expressions and if Statements

- Finding Boolean values with expressions involving relational operators
- Using conditional statements to execute different statements based on input values
- Building on conditional statements to create multiple possible outcomes
- Creating the same value using equivalent Boolean expressions
- Referencing objects with aliases

Exam weight: 15 - 17.5%

Iteration

- Creating a loop to run an expression repeatedly until certain conditions are met
- Standard arithmetic-based and String algorithms
- Representing iterative processes in code using for and while loops
- Nesting loop and iteration statements

Exam weight: 17.5 - 22.5%

Writing Classes

- The makeup of a class, including whether attributes are public or private
- Setting an object's attributes using constructors
- Using comments to describe the functionality of code
- Defining behaviors of an object using non-void, void, and static methods
- Where variables can be used in program code
- Breaking problems into smaller parts by creating methods to solve individual subproblems
- Intellectual property and ethical concerns in programming

Exam weight: 5 - 7.5%

Array

- Representing multiple related items as array objects
- Traversing an array by accessing the elements using iteration statements
- Standard algorithms that utilize array traversals to perform functions

Exam weight: 10 - 15%

ArrayList

- Representing collections of related object reference data using ArrayList objects
- Traversing an ArrayList by accessing the elements using iteration statements
- Standard algorithms that utilize ArrayList traversals to perform functions
- Searching and sorting using standard algorithms
- Ethical issues around data collections

Exam weight: 2.5 - 7.5%

2D Array

- Representing collections of data as arrays of arrays, or 2D arrays
- Traversing a 2D array by accessing the elements using nested iteration statements

Exam weight: 7.5 - 10%

Inheritance

- Using common attributes and behaviors to group existing objects into superclasses
- Defining and overriding methods within subclasses and superclasses
- Creating references using inheritance hierarchies
- Associating subclass objects with superclasses to create polymorphism

Exam weight: 5 - 10%

Recursion

- Executing recursive methods
- Searching and sorting using binary search and merge sort algorithms

Exam weight: 5 - 7.5%

Preparing for the AP Computer Science Exam

Make a study plan



Creating a study plan can help guide you in the right direction to ensure success on the AP Computer Science exam.

Determine how much time you have before the exam and how much time you can devote to prepare for the exam. Answering these questions will help you set a pace for your review.

Take a diagnostic test



The diagnostic test will help you identify your weak spots in the course. Based on the results of the test, plan your study time to address the areas where you need improvement.

Take practice tests



Completing practice tests will help you maintain pacing, and in understanding and answering multiple-choice question, and practice in writing timed questions.

Pacing is important! Work quickly and carefully throughout the test. Answer as many questions as you can as quickly as you can, and then go back and try to fill in the others.



Complete assignments



Complete all assignments for your regular AP Computer Science class. The test is designed to measure your development and understanding of computer science.

Tip

In the free-response sections, be neat, thorough, and very clear. You don't want those grading your exam to guess what you wrote or what you meant.

Test Prep



To help you prepare for the AP Computer Science exam, check out Peterson's [AP Computer Science test prep course](#), which includes two full-length practice tests, self-learning skills, and strategies.