AP Computer Science A

Professional Learning

Course Syllabus and Planner

Course Overview

The CompuScholar **AP Computer Science A Professional Learning** course is designed to prepare teachers for success in the AP CSA classroom using the **Java Programming** curriculum. This guide describes the course content, learning goals, and expected pacing.

Professional Learning Material

All Professional Learning material is online; there are no physical components. Teachers can log into their accounts from any web browser on any device to access course content.

Elements are arranged into chapters and lessons to cover teaching topics recommended by the College Board. Each lesson contains the following components:

- **Lesson Text** – full-color HTML page with instructional content
- **Activity** (found within the Lesson Text) - hands-on activities ask teachers to do, explore or create certain things
- **Self-Check** – a brief, multiple choice quiz teachers can use to verify understanding of the lesson content

Additional access to the online **Java Programming** course is required. Teachers can obtain access to the **Java Programming** course as described in the introductory lesson.

Professional Learning Planner

The following table contains an outline of course content, including the estimated time per lesson and the activities associated with each lesson. The time estimated to complete the entire course is approximately 10-11 hours. Some teachers may complete the course in more or less time.

The time estimated for a lesson (in minutes) includes reading the lesson text, doing the activity within the lesson, and completing the lesson's self-check quiz. Teachers can opt to scale, modify or skip activities based on their personal experience (activities are for personal benefit) but should complete all self-check quizzes to earn a stipend (see Chapter 1, Lesson 1 for details).

The course is self-paced, so teachers can move through lessons on any desired schedule.

Time (min)	Chapter 1: Professional Learning Materials	Activities
15	**Lesson 1**: Welcome and Introduction	Ensure **Java Programming** Course Access
15	**Lesson 2**: PL Syllabus and Pacing	Review the PL Syllabus
Time (min)	Chapter 2: Understanding the Course	Activities
15	**Lesson 1**: Official CED	Access the CED
20	**Lesson 2**: Computational Thinking Practices & Skills	Explore Computational Thinking Practices and Skills
20	**Lesson 3**: Unit Sequence	Course at a Glance
25	**Lesson 4**: Big Ideas and Unit Descriptions	Understanding the Scope of the Course
Time (min)	Chapter 3: Planning the Course	Activities
20	**Lesson 1**: HW and SW Requirements	Plan Your Devices
30	**Lesson 2**: Course Content and Sequencing	Learning and Applying Iteration
40	**Lesson 3**: Skill Development	Follow a Developing Skill
40	**Lesson 4**: College Board's Open Enrollment Policy	Economic Impact
Time (min)	Chapter 4: Teaching the Course	Activities
30	**Lesson 1**: CompuScholar Syllabus and Pacing Guide	Review the **Java Programming** Syllabus
45	**Lesson 2**: CompuScholar System Overview	Explore the **Java Programming** Course
20	**Lesson 3**: CompuScholar Lessons, Homework and Labs	Customizing Live Code Examples
20	**Lesson 4**: CompuScholar Assessments	Identify Areas for Student Remediation

Time (min)		Activities
45	**Lesson 5**: CompuScholar in Spanish and Other Languages	Practice Spanish Translations
Time (min)	**Chapter 5: Becoming a Member of the AP Community**	**Activities**
30	**Lesson 1**: Teacher Registration and Course Audit	Complete Your Teacher Setup
30	**Lesson 2**: College Board Resources and Student Registration	Exploring Resources
Time (min)	**Chapter 6: Assessing Student Progress and Understanding**	**Activities**
45	**Lesson 1**: Understanding the Exam	Exploring the CED Exam Description Pairing Content and Skills for the AP Exam
25	**Lesson 2**: Integrating AP Classroom Videos	Exploring Daily Videos
25	**Lesson 3**: Integrating AP Classroom Questions	Scheduling Topic Quizzes and Progress Checks
25	**Lesson 4**: Integrating AP Practice Labs	Explore a Practice Lab
20	**Lesson 5**: Preparing Students for the Exam	Explore AP Classroom FRQ Questions
Time (min)	**Chapter 7: College Board Providers**	**Activities**
10	**Lesson 1**: Other Opportunities	N/A
10	**Lesson 2**: Next Steps	N/A

For a more detailed description of each lesson, please see the following pages.

Lesson Details and Learning Goals

This section describes the learning goals, main points and hands-on activity within each lesson.

Chapter 1: Professional Learning Materials

Lesson 1: Welcome & Introduction (15 min)

Goals	• Learn how the PL course works • Understand how to get curriculum access • Identify the course completion stipend
Description	This lesson introduces teachers to the format and overall approach of the course. It describes how to get access to the full **Java Programming** curriculum for reference and outlines requirements for obtaining a teacher stipend upon completion.
Activity	Teachers will ensure they have access to a full **Java Programming** course on their Teacher Dashboards.

Lesson 2: PL Syllabus and Pacing (15 min)

Goals	• Review this syllabus • Understand how lesson will fit into a personal schedule
Description	This lesson provides access to this syllabus and outlines the main pacing guidance.
Activity	Teachers will establish their own completion schedule and goals based on the estimated time to complete each lesson.

Chapter 2: Understanding the Course

Lesson 1: Official CED (15 min)

Goals	• Obtain the CED from the College Board • Discover the main sections of the CED
Description	This lesson shows teachers where to find and download the CED from the Collage Board's website. It describes each of the main CED sections, along with page numbers for each section.
Activity	Teachers will ensure they have downloaded a copy of the CED for easy reference.

Lesson 2: Computational Thinking Practices & Skills (20 min)

Goals	• Identify the 5 Computational Thinking Practices • Learn about the Skills associated with each CTP
Description	This lesson introduces the 5 Computational Thinking Practices described in the CED. For each practice, the associated Skills are identified and described.
Activity	Teachers will learn how to identify the skills associated with a specific unit or topic and search the CED for all instances of a specific skill.

Lesson 3: Unit Sequence (20 min)

Goals	• Identify the 10 Units and exam weighting • Be able to briefly describe each Unit
Description	This lesson lists and describes each of the 10 Units in the CED, along with the exam weighting for each Unit.
Activity	Teachers will review the "Course at a Glance" section of the CED to broadly understand the scope of the Topics for each Unit.

Lesson 4: Big Ideas and Unit Descriptions (25 min)

Goals	• Identify the 4 Big Ideas and how they are related to Units • Identify important vocabulary (Unit, Topic, Enduring Understanding, Learning Objective, Essential Knowledge) • Understand topic notation found in the CED
Description	This lesson takes a closer look at Unit and Topic descriptions, including an explanation of the Big Ideas (MOD, VAR, CON, IOC) and how they relate to Unit requirements. Teachers will learn how Units contain Topics, and Topics have Enduring Understandings, Learning Objectives and Essential Knowledge. The CED notation for each topic element is illustrated.
Activity	Teachers will review the "Unit at a Glance" sections for each of the 10 Units in the CED to gain a more detailed understanding of the topics and skills required throughout the course.

Chapter 3: Planning the Course

Lesson 1: HW and SW Requirements (20 min)

Goals	• Learn about device and software requirements • Discover optional integration services
Description	This lesson describes the minimal hardware and software requirements needed to successfully complete the AP CSA course. It also describes free options to integrate with district infrastructure, including automatic rostering, single-sign-on (SSO), and hosting in a district LMS.
Activity	Teachers will identify the devices and other infrastructure their students will use in the local school lab or virtual setting.

Lesson 2: Course Content and Sequencing (30 min)

Goals	• Map **Java Programming** chapters to CED Units • Understand how skills are built over time
Description	This lesson describes how the **Java Programming** course chapters map to the Unit Sequence specified in the CED. Teachers will identify the main curriculum components that develop mastery over time.
Activity	Teachers will review one specific skill (iteration) as it is initially explained in a course chapter, then follow how that skill is used in increasingly complex scenarios in subsequent chapters and activities.

Lesson 3: Skill Development (40 min)

Goals	• Identify scaffolded opportunities for skill development • Understand the relative difficulties of each hands-on component
Description	This lesson explores the hands-on opportunities for students to learn and demonstrate skills. The relative difficulty and sequencing of lesson examples, lesson Work-with-Me exercises, homework problems and chapter activities is explained.
Activity	Teachers will follow the development of one example skill (CON-2.A.2: if() statements) as students progress through each of the scaffolded exercises within the chapter.

Lesson 4: College Board's Open Enrollment Policy (40 min)

Goals	• Understand the CED's Equity and Access Policies • Identify the need to recruit under-represented student groups
Description	This lesson displays and discusses the College Board's open enrollment policy as listed in the CED. It also suggests several approaches to recruiting students in historically under-represented groups.
Activity	Teachers will research, develop and plan to communicate outreach to under-represented student groups and their parents based on the economic benefits of a career in computer science.

Chapter 4: Teaching the Course

Lesson 1: CompuScholar Syllabus and Pacing Guide (30 min)

Goals	• Obtain the **Java Programming** course syllabus • Understand the course syllabus contents and pacing
Description	This lesson provides links to the **Java Programming** course syllabus and discusses the main sections within the syllabus. The pacing guidance within the syllabus is explained and teachers are offered the opportunity to customize the syllabus for their own students.
Activity	Teachers will explore the **Java Programming** syllabus and identify how much time they will have (based on their local school calendar) for review and exam prep before the AP exam in May.

Lesson 2: CompuScholar System Overview (45 min)

Goals	• Learn about the major parts of the CompuScholar LMS • Learn to navigate through the main **Java Programming** elements
Description	This lesson introduces the CompuScholar Learning Management System (LMS) and describes how the **Java Programming** course is accessed from that LMS. It also introduces the variety of deployment models available for licensed students in production classrooms.
Activity	Teachers will ensure they know how to navigate through all the main elements in the **Java Programming** course (Teacher's Menu, chapters, lesson elements, etc.).

Lesson 3: CompuScholar Lessons, Homework and Labs (20 min)

Goals	• Identify the main instructional elements in each chapter • Learn about optional chapters • Learn about customization options
Description	This lesson describes the main instructional elements found in each chapter (videos, lesson text, quizzes, teacher guides, answer keys, activities, homework). It also points out optional chapters on using External IDEs and other non-AP skills. Teachers will learn to customize aspects of the course like assigned homework problems, quiz and test modification, and adding new resources.
Activity	Teachers will practice customizing one of the live code examples to demonstrate a concept in a different manner.

Lesson 4: CompuScholar Assessments (20 min)

Goals	• Distinguish between quizzes and exams (tests) • Identify the default weighting of categories in the gradebook • Learn to work with the gradebook.
Description	This lesson covers the **Java Programming** quizzes and tests. Teachers will learn to show or hide those assessments and use the provided answer keys. We introduce the electronic gradebook and provide pointers to additional instruction on using the gradebook and customized assessments.
Activity	Teachers will study sample quiz results to identify areas where a student needs remediation.

Lesson 5: CompuScholar in Spanish and Other Languages (45 min)

Goals	• Learn how to change system prompts to Spanish • Learn how to auto-translate course text into any language
Description	This lesson describes two options for ELL student support. First, the CompuScholar LMS can be changed to Spanish mode to display Spanish system prompts and navigation cues. Second, the course material itself can be automatically translated to Spanish or other languages using Google Translate or similar services.
Activity	Teachers will practice translating parts of the **Java Programming** course to Spanish (or other languages) using Google Translate.

Chapter 5: Becoming a Member of the AP Community

Lesson 1: Teacher Registration and Course Audit (30 min)

Goals	• Create a teacher account with the College Board • Complete the AP CSA Course Audit
Description	This lesson describes how to create a teacher account at the College Board website (if needed). Teachers are then guided through the Course Audit process to become an authorized AP CSA teacher.
Activity	Teachers will ensure they have created an account with the College Board and complete the Course Audit to process to gain authorized access to AP Classroom and other secure documents.

Lesson 2: College Board Resources and Student Registration (30 min)

Goals	• Identify secured documents available to authorized teachers • Learn about conditions of use for secured documents • Explore AP Central and the AP Community forums • Learn how to register students for AP Classroom
Description	This lesson covers several topics related to establishing an authorized teacher account on the College Board website. Teachers who have completed the course audit will have access to AP Classroom where they can learn to register students.
Activity	Teachers who have completed the Course Audit will explore the secured AP CSA documents, AP Central, the AP Teacher Community Forms, and visit AP Classroom.

Chapter 6: Assessing Student Progress and Understanding

Lesson 1: Understanding the Exam (45 min)

Goals	• Learn about the AP CSA exam format and question types • Study the exam weighting of each Unit • Identify FRQ topics • Review FRQ scoring guidelines
Description	This lesson focuses on the format of the AP CSA exam, including the question types (MCQ and FRQ) and the weights of each exam section and relevant skills. It also highlights the FRQ scoring guidelines in the CED.
Activity	Teachers will study the CED exam overview and sample MCQ and FRQ questions to understand overall complexity, scope and format. The scoring guidelines and 1-point penalties are also reviewed.

Lesson 2: Integrating AP Classroom Videos (25 min)

Goals	• Learn to access Daily Videos in AP Classroom • Identify when Daily Videos can be scheduled
Description	This lesson highlights the Daily Videos available as an additional student resource in AP Classroom. Teachers will learn when Daily Videos are appropriate to schedule in context of a student's ongoing **Java Programming** coursework.
Activity	Teachers will explore some sample Daily Videos from each Unit to see how information is presented. They can then decide if, when and how to recommend those videos to their students.

Lesson 3: Integrating AP Classroom Questions CED (25 min)

Goals	- Understand the Topic Questions in AP Classroom - Learn to use the Question Bank and customize quizzes - Identify and apply Progress Checks when appropriate - Understand the College Board's Appropriate Use Policy - Access AP Classroom Help for further assistance
Description	This lesson explores the questions available in AP Classroom. Teacher will learn what question types are available, how to build custom quizzes from the question bank, and how to time the questions in the context of ongoing **Java Programming** coursework. Pointers to the College Board Help menu and additional tutorials are provided.
Activity	Teachers will practice identifying the AP Central questions that can be used after completing specific topics within the **Java Programming** course.

Lesson 4: Integrating AP Practice Labs (25 min)

Goals	- Learn about the available College Board practice labs - Access secured teacher material from the Course Audit page - Understand programming environment requirements
Description	This lesson describes the optional practice labs published by the College Board. Teachers will learn how to find the student and teacher material, when those labs can be assigned in the context of ongoing **Java Programming** coursework, and how to identify an external IDE to support the labs.
Activity	Teachers will select one practice lab to explore in more detail, downloading the student guide and the secured teacher materials. Teachers will then review the student and teacher guides to understand how the lab works and the kind of programming environment needed.

Lesson 5: Preparing Students for the Exam (20 min)

Goals	• Download and use the Java Quick Reference • Identify sources of practice MCQ and FRQ questions • Understand the FRQ pencil-and-paper answer format
Description	This lesson provides tips on preparing students for success on the AP CSA exam. Teachers will learn to distribute and reference the Java Quick Reference and identify and use sources of practice MCQ and FRQ problems. The nature of the FRQ pencil-and-paper answer format is highlighted with a recommendation for practice in that format.
Activity	Teachers will log into AP Classroom and learn to filter the Question Bank to find FRQ questions. They will review each available FRQ to understand the available practice opportunities for students in that format.

Chapter 7: College Board Providers

Lesson 1: Other Opportunities (10 min)

Goals	• Understand there are multiple endorsed providers • Understand the College Board-sponsored AP CSA PL
Description	This lesson communicates two messages from the College Board regarding other endorsed providers and other AP CSA professional learning opportunities.
Activity	N/A

Lesson 2: Next Steps (10 min)

Goals	• Obtain a certificate of completion • Understand licensing options for the **Java Programming** course • Obtain a completion stipend
Description	This lesson wraps up the professional learning experience with advice on how to print a certificate of completion and obtain licensing for students in the **Java Programming** course. Final guidance is given on qualifying for and receiving the teacher completion stipend.
Activity	N/A