

AP[®] Computer Science Principles

AP[®] Summer Institute Graduate Credit Assignment

Pages 1 and 2 contain 30 Hours Independent Course Mastery and Preparation – Projects to be completed prior to, during or after (on or before announced deadline) the AP Summer Institute professional development course.

Assignment Rationale & Overview

The assignment for obtaining credit for the APCSP APSI is meant to expand exposure to the course content and allow the participant experience with portions of the course assessment.

Using the AP[®] Computer Science Principles course resources provided, resources obtained from CollegeBoard’s Course Page and/or other online resources, produce the following deliverable items to demonstrate your knowledge of the course content and assessment.

Resource Links

AP Computer Science Principles Course Home

<https://advancesinap.collegeboard.org/stem/computer-science-principles>

AP Computer Science Principles Curriculum Framework

<https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-computer-science-principles-course-and-exam-description.pdf>

Explore Performance Task Guidelines

https://www.dropbox.com/s/t8nxolvwaffirw1/Explore_Performance_Task_Nov2015.pdf?dl=0

Explore Performance Task Rubric

https://www.dropbox.com/s/33idp93col1uufu/Explore_Performance_Task_Rubric_Nov2015.pdf?dl=0

APCSP Exam Reference Guide (page 114 of the Curriculum Framework)

Assignment	Percentage					
<p>1 Why APCSP? Review the Curriculum Framework; Read pages 4, 7-9 with particular emphasis; Write a one-page summary of why, how and by whom this course was conceptualized and brought to fruition. Explain reasons that broadening participation in CS is a goal for APCSP based on job trend data, current participation in STEM courses and opportunities in STEM fields.</p>	10%					
<p>2 What is a [P#]? Read and consider the six Computational Thinking Practices woven into the APCSP course (framework pages 10-11); review many of the Learning Objectives on pages 12+ of the Framework; notice the [P#] at the end of each learning objective and connect that back to the Computational Thinking Practice on pages 10-11. Create cross reference between each P1-6, three LOs, and a possible activity or assignment for the course. Example:</p> <table border="1"> <tbody> <tr> <td rowspan="2">P5 Communicating</td> <td>LO 2.1.2 Explain how binary sequences are used to represent digital data [P5]</td> <td>Students could create a binary calculator to represent bits of data; students will work with a partner to test and solve sequences.</td> </tr> <tr> <td>LO 4.1.2 Express and</td> <td>Students will write a Snap! algorithm to draw a</td> </tr> </tbody> </table>	P5 Communicating	LO 2.1.2 Explain how binary sequences are used to represent digital data [P5]	Students could create a binary calculator to represent bits of data; students will work with a partner to test and solve sequences.	LO 4.1.2 Express and	Students will write a Snap! algorithm to draw a	20%
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	LO 4.1.2 Express and	Students will write a Snap! algorithm to draw a				

	algorithm in a language [P5]	square; students will explain their algorithm to a partner and work collaboratively to demonstrate and test each other's algorithms.
	LO 6.2.1 Explain characteristics of the Internet and the systems built on it. [P5]	Student teams will create an infographic or presentation on the layers of the Internet, domain names, packet protocols, or IP addresses and will present to the class.

3 Explore Performance Task

50%

Following the instructions on the Explore Performance Task Guidelines and considering the Explore PT Rubric, **prepare a deliverable Explore – Impact of Computing Innovations Performance Task project.** You may select any computing innovation you wish; however, it is recommended you consider an innovation that has sufficient resources to satisfy the references requirement. Examples for the task could include: Tesla automobile; Smart Watch; Google Cardboard; medical apps; Netflix, etc.

4 Assessment Overview and Exam Reference Guide Evaluation

20%

Using pages 80+ and the ERG provided, **prepare a graphic organizer, table or infographic to explain the assessment of the APCSP course.**

Include the following in your deliverable:

- List the three components of the AP Computer Science Principles assessment
- Provide the weight percentages of each of the components (Explore, Create, Exam)
- Identify the types of questions on the exam
- Specify the role of the teacher during through-course assessment (page 71)
- Specify the role of the Exam Reference Guide (page 114) during the exam and during the course and exam prep
- There are to be 74 questions on the exam; using the percentages given on page 82, provide a breakdown of how many questions will be from each course Big Idea?
- What should teachers do to plan for the question types from Big Ideas?
- Your thoughts on preparing to teach APCSP considering the layers of assessment.

Page 3 contains 12 Hours of course activities that will be completed during the AP Summer Institute professional development course.

	Day of AP Summer Institute	Minimum Time
Day 2	Computational Thinking Practice In-Depth & Applied Using Lessons 6-11 of the CollegeBoard Participant's workbook and with guided class activities, participants will analyze and reflect on teaching methods and student application of lessons for each of the six computational thinking practices. Collaboratively and individually participants will engage in modeled activities and consider classroom application. Assessment: Participation; Participant workbook reflection; completed samples of activities	4 hours
Day 3	Performance Task Analysis and Mock Reading Participants will consider the Explore and Create Performance Tasks and using Lesson 17 and leader guides will consider the skill sets required of students for PT mastery. Using current CollegeBoard PT rubrics, participants will work collaboratively to conduct a Mock Reading of one example of each PT. Whole group discussion will follow the Mock Reading. This activity will give teachers experience with the instructions and expectations of the Performance Tasks and emphasize the importance of student preparation through scaffolding of activities. Assessment: Participation; Participant workbook reflection; completed sample graded rubrics	4 hours
Day 4	APCSP Course Planning and AP Teacher Community On Day 4, participants will spend time locating and evaluating available resources for their course. Additionally, teachers will work in cooperative and collaborative groups to discuss sequencing and programming language options. Teachers will use planning calendars to brainstorm course planning outlines with emphasis on school calendars and placement of time mandates for student Performance Task projects. Assessment: Participation; Participant workbook reflection; completed samples of activities; AP CSP teacher community account set up	4 hours