FREQUENTLY ASKED QUESTIONS

The 2020 **AP** Computer Science Principles Exam

2020 Exam Administration

With schools being closed, how do I ensure that College Board knows I've committed 8–12 hours to the Create performance task without teacher supervision?

As long as you're not able to be in school, we'll waive the required in-class hours for completing the Create and Explore performance tasks. The required number of in-class hours is meant to ensure that students have access to the necessary technology to complete their performance tasks. You can work on the tasks outside of a classroom for as many hours as you deem necessary to complete your performance tasks and do your best work.

If you return to school, teachers should ensure that you have access to technology to complete the tasks.

I am a second semester student, and I never signed up or paid for my AP Computer Science Principles Exam. What should I do?

Unfortunately, exam ordering is closed at this time.

What is the score weighting for the Create and Explore performance tasks now, since there's no end-of-course exam administration in 2019-20?

The scoring results from the Explore and Create performance tasks will be used to calculate a final score using the 1–5 scale. Each assessment will count for a certain percentage of the total AP score. For the

2019-20 exam administration, the Explore performance task counts for 40% of the total score, and the Create performance task counts for 60% of the total score.

I am a second semester student, and I developed the program for the Create performance task last month without getting feedback from my teacher. Can I use this program?

Yes. You can use this program.

Should I review the 2019 or the 2020 scoring guidelines to understand how my work will be assessed?

We haven't made any changes to the 2019 scoring guidelines for the 2020 exam administration. The scoring guidelines for 2019 and 2020 are identical. Access the **2020 AP Computer Science Principles Scoring Guidelines**.

When will scores be released?

Despite obstacles presented by the coronavirus pandemic, we're working hard to adhere to our earlier commitment of July as the time students will be provided with their scores. Visit the **AP Score Schedule site** for updates.

Abstraction and Algorithm

What is considered an abstraction, and does abstraction need to have parameters?

There are two types of abstraction in the AP CSP course: data abstraction and procedural abstraction. Refer to pages 66 and 67 in the **AP CSP Course and Exam Description** for more information on abstraction.

Should procedural abstraction be used more than once throughout the code?

Refer to pages 66 and 67 in the **AP Computer Science Principles Course and Exam Description** for more information on abstraction.

What is an algorithm? Do algorithms need logical AND mathematical components?

Refer to pages 22 through 25 in the **AP Computer Science Principles Course and Exam Description** for information on algorithms. Your algorithm **must** contain mathematical or logical concepts. The scoring guidelines state:

- Algorithms are precise sequences of instructions for processes that can be executed by a computer and are implemented using programming languages. (EU 4.1)

- Algorithms make use of sequencing, selection or iteration. (EK 4.1.1A)

- Mathematical concepts include mathematical expressions using arithmetic operators and mathematical functions. (EK 5.5.1.D)

- Logical concepts include Boolean algebra and compound expressions. (EK 5.5.1E and 5.5.1F)

- Iteration is the repetition of part of an algorithm until a condition is met or for a specified number of times. (EK 4.1.1D)

- Selection uses a Boolean condition to determine which of two parts of an algorithm is used. (EK 4.1.1C)

- Iteration is the repetition of part of an algorithm until a condition is met or for a specified number of times. (EK 4.1.1D)

- Selection uses a Boolean condition to determine which of two parts of an algorithm is used. (EK 4.1.1C)

Is a sub-algorithm required and, if so, are "if statements" examples of sub-algorithms?

In the Create performance task directions, under General Requirements on pages 9 and 10, it states: "You are required to: independently develop an algorithm that integrates two or more algorithms and that is fundamental for your program to achieve its intended purpose."

It's possible that an if statement could be considered a sub-algorithm; it depends on your program code and what you write about the algorithm.

What's the difference between procedural abstraction and algorithm?

In the scoring guidelines for the Create performance task on rows 4 and 5, it states the following regarding algorithms:

- Algorithms are precise sequences of instructions for processes that can be executed by a computer and are implemented using programming languages. (EU 4.1)

- Algorithms make use of sequencing, selection or iteration. (EK 4.1.1A)

- Mathematical concepts include mathematical expressions using arithmetic operators and mathematical functions. (EK 5.5.1.D)

- Logical concepts include Boolean algebra and compound expressions. (EK 5.5.1E and 5.5.1F)

- Iteration is the repetition of part of an algorithm until a condition is met or for a specified number of times. (EK 4.1.1D)

- Selection uses a Boolean condition to determine which of two parts of an algorithm is used. (EK 4.1.1C)

- Iteration is the repetition of part of an algorithm until a condition is met or for a specified number of times. (EK 4.1.1D)

- Selection uses a Boolean condition to determine which of two parts of an algorithm is used. (EK 4.1.1C)

- In the scoring guidelines for the Create performance task on row 6, it states the following regarding abstraction:

- The following are examples of abstractions (EK 5.3.1):
  - Procedures
  - Parameters
  - Lists
  - Application program interfaces (APIs)
  - Libraries

- Lists and other collections can be treated as abstract data types (ADTs) in developing programs. (EK 5.5.1I)

It also states on row 7:

- Do NOT award a point if any one of the following is true:
  - the response is an existing abstraction such as variables, existing control structures, event handlers, APIs

Citation, Permissions, and Plagiarism

On the computational artifact, do students have to cite images from outside sources (example screenshots of Google Maps, Google Slides, Google Drawing, or images provided by Scratch)? How do students cite images or screenshots?

Students should acknowledge any external media used in the creation of their computational artifacts. External media include images, music, and other media that aren't original student work. This media can be acknowledged on the computational artifact itself, in a credits section, or in a works-cited page.

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How specific do the citations need to be? Do students need to follow a specific style guide (MLA, Chicago Manual of Style, etc.)?

For each online source, include the complete and permanent URL. Identify the author, title, source, the date you retrieved the source and, if possible, the date the reference was written or posted.

For each print source, include the author, title of excerpt/article and magazine or book, page number(s), publisher, and date of publication.

If you include an interview source, include the name of the person you interviewed, the date on which the interview occurred, and the person's position in the field.

Although there's no specific citation style required in AP CSP course, MLA, APA, or IEEE would be appropriate to use for a works-cited page.

If students create their own background or sprites using third-party applications, such as Universal Sprite Sheet or Paint, how do they cite this work?

If the creation of sprites is supported by the programming language you're using, you can include them. Acknowledgment of images that aren't your own can be done either in comments in the program code or in response 2B.

How many sources do students need to cite for Explore, and how recent do the sources need to be?

For the Explore performance task, you're required to provide in-text citations of at least three (3) different sources that helped you create your computational artifact and/or formulate your written response.

- At least 2 of the sources must be available online or in print; your third source may be online, in print, or a personal interview with an expert on the computing innovation.
- At least 2 of the sources must have been created after the end of the previous academic year.

Does the student retain permission rights to their program after the scoring?

Yes. You have permission rights to the program that you're creating from the moment that you create and submit that program as final. As part of your final submission process, you also have the opportunity to indicate whether you give College Board permission to reuse your work for educational research and instructional purposes. This doesn't impact your score.

What's considered plagiarism in code? If two students share a similar code, would that be considered plagiarism?

Any program code which hasn't been written by you must be cited and credit given to the author. You must acknowledge program code segments you didn't write yourself. This includes open-source program code segments, as well as any conclusion you make that's supported by data sets, articles, books, and other sources.

One way you can acknowledge someone else's program code is by adding a comment either to the program code or to the documentation, crediting the author and listing where the program code was found. This includes program code that may have been written together as part of whole-class instruction. Two students can share the same program code, but each of the students would need to cite which parts of the code were created by their partner. Each student is required to contribute their own independently created algorithm and abstraction, which they will use in the written response.

Who checks the work of homeschooled students and independent study students for plagiarism?

All students are required to attest to the authenticity of their submissions when submitting their work as final in the Digital Portfolio. College Board uses manual and automated checks for plagiarism; therefore, we don't require that submissions be checked by a teacher or other adult.

Computing Innovations

What are good examples of computational artifacts I can use to complete my performance tasks?

A computational artifact is a visualization, a graphic, a program, a video, or an audio that students create using a computer. When creating computational artifacts, think outside of traditional means for communicating ideas (e.g., PowerPoint presentations).

Effective artifacts include:

- visual, graphical, and/or audio content to help a reader understand the purpose, function, or effect of a computing innovation; and

- the use of communications media, such as animations, comic strips, infographics, and/or public service announcements, to illustrate the purpose, function, or effect of a computing innovation.

Can I use a computing innovation that I created prior to 2019 but that contains articles that are current? How recent does the computing innovation need to be?

There's no requirement regarding how recently developed a computing innovation has to be. There **are** requirements, however, regarding resources used in the response.

For the Explore performance task, students should select a computing innovation for which they can find a minimum of three resources to use as part of their investigation. In your written response, you're required to provide in-text citations of at least three (3) different sources that helped you create your computational artifact and/or formulate your written response.

- At least 2 of the sources must be available online or in print; your third source may be online, in print, or a personal interview with an expert on the computing innovation.
- At least 2 of the sources must have been created after the end of the previous academic year.

What do I do if I don't know what data my computing innovation takes in?

It sounds like this might not be the best computing innovation to select for your performance task. You should select a computing innovation where there are enough resources to answer all of the prompts for the task.

Who do I turn to for help if I don't have a teacher providing me with feedback?

If you're completing course content and performance tasks on your own, you should start by reviewing the **AP Computer Science Principles Course and Exam Description**. This document covers everything a student should know and be able to do at the end of the course. It also contains the assessment overview and performance task directions students need to complete their performance tasks. Students should watch the **AP CSP videos on YouTube** that cover important information about how to complete performance tasks.

You're allowed to collaborate with other CSP students on your program code. If possible, you should work collaboratively on your program code and provide feedback to each other.

In addition, you can review **the scoring guidelines** that the AP Program used to score the Create and Explore performance tasks, as well as **student samples and scoring commentary**.

Programming Language

Is there a limit to how much code a student can write?

No. Just be sure you're able to answer the written response prompts.

What's the process to submit the code in the digital portfolio?

Please refer to the **AP Digital Portfolio Student Guide** for the process on how to submit your work, including code, in the digital portfolio.

How do I create a PDF of my program code?

If the program code is text based, students can use the print command to save their program code as a PDF file, or they can copy and paste the program code into a text document that can then be converted or saved as a PDF file. Students using a block-based programming language may need to use screen capture software to capture their code and paste it into a text document to then be converted into a PDF file. Students should capture clear images of only the program code.

What program do I use to record the code?

Several programs can be used to take videos of your program code running. A popular one is **Screencast-o-matic** or **Screencastify**. Students can also video their program running using a second device like a phone or tablet. Check out the **Completing and Submitting** video on the Advanced Placement® YouTube channel.

Can I use any programming language I want, including new programming languages like Flutter?

Yes. You can use any programming language that allows you to create algorithms and abstractions. We recommend you use the programming language that's assigned by your teacher. For some, the device you have access to might not support the language your teacher has been using. In this case, we've provided a series of five videos on the **Advanced Placement YouTube channel using MakeCode**.

Where do I find more information about MakeCode? Does it have block-based programming?

There are five videos on the Advanced Placement YouTube channel using MakeCode. MakeCode allows you to complete your program in either block-based or text-based programming.

Can I use HTML as my programming language for the Create performance task?

No. You must use a programming language that allows you to create abstractions and algorithms.

Performance Tasks

What is the collaboration policy for the Create and Explore performance tasks?

Collaboration is only allowed on designated sub-components of the Create performance task.

For the Explore – Impact of Computing Innovations performance task, collaboration of any kind is **not** allowed.

For the Create – Applications from Ideas performance task, you're encouraged to collaborate on the development of your program with another student in your class.

Collaboration is **not allowed** during the creation of the video or when answering the written responses. The written responses must be written independently, and responses to parts 2C and 2D should be centered around the algorithm and abstraction developed independent from your partner. In addition, the response to part 2B should focus on at least one of the difficulties or opportunities in something you did independently; the other can be either independent or collaborative.

If you're completing AP CSP in a nontraditional classroom situation (e.g., online, homeschool, independent study), you're encouraged to collaborate with another student peer when completing the Create performance task.

Will the Explore performance task be rejected if I forget to remove my name from the file? What happens if I accidentally submit the final file with my name?

No. Your submission won't be rejected, nor will you be penalized in any way. Your task will be scored as usual.

Can I include images to supplement the Create performance task video? Does the video need to include commentary? Do I need to show myself in the video?

Your video should demonstrate the running of your program. You should **not** include additional images into this video.

You're allowed to narrate your video, but this isn't necessary.

You don't need to show yourself in the video.

How do I answer the written portion of the performance task if the calculator I've created uses just one function?

Your program needs to be robust enough to answer all of the individual written response prompts. You may need to add additional functionality to your program if you're unable to answer the written portion.

For the Create performance task, do I need to mark ovals and rectangles only in the program code, or in 2c and 2d as well?

The ovals and rectangle only need to be included in the program code.

For the Create performance task, would including greater than/less than symbols fulfill the mathematical concept requirements? What about "if statements"?

The following is included in the scoring guidelines for the Create performance task:

- Mathematical concepts include mathematical expressions using arithmetic operators and mathematical functions. (EK 5.5.1.D)

- Logical concepts include Boolean algebra and compound expressions. (EK 5.5.1E and 5.5.1F)

Where do I find the Written Response template for the performance tasks?

To access the Written Response templates in the AP Digital Portfolio, navigate to the Written Responses page for the performance task you're working on. Then, scroll down to the Download Template for Written Responses section. You can also visit the Resources section on the **Exam Tips page**.

We strongly encourage you to use the Written Response templates for the Create and Explore performance tasks to ensure accurate scoring and to respond to all the performance task requirements in an organized and properly labeled manner. Refer to the **student guide (page 4)** for more information.

Submitting Work in the AP Digital Portfolio

How do I access the AP Digital Portfolio, and how do I upload performance tasks?

First, you get to join the AP CSP class section in **myap.collegeboard.org** after you receive a join code from your AP CSP teacher or AP coordinator (if you're a nontraditional student). When you enroll in an AP CSP class section, your enrollment carries over to the AP Digital Portfolio. You can log in to the **AP Digital Portfolio** using your College Board username and password. You may have an existing account if you viewed AP scores or registered for the SAT online. You can request a password reset, or you can create a new account if you don't already have one. Contact **apcsp@collegeboard.org** if you can't remember your login information.

Visit the **AP Digital Portfolio** site for more information on how to upload your work on the digital portfolio.

Can I start uploading work without submitting it as final in the digital portfolio?

Yes. You can start uploading drafts of your performance tasks. Once you've uploaded a document, it will be available for you and your teacher to download. Your work won't be sent to College Board for scoring until you submit it as final. You can download the most recently uploaded document by clicking the **Download Latest** button, or by clicking the link in the Activity Feed. Prior versions of a submission can be retrieved via the Activity Feed. Refer to the **student guide (page 5)** for more information on how to upload and download draft work.

Can I turn in the written portion and the computational artifact at different times, or should I turn them in at the same time?

You can upload drafts of any portion of the performance task at any time. They don't have to be submitted at the same time. However, all of your work must be submitted as final by **May 26, 11:59 PM ET**. We recommend that you don't wait until the last minute to submit your work.

Scoring

Does the programming environment affect the score I get?

No. The AP readers who score the AP Computer Science Principles Exam are knowledgeable on various programming languages. The programming environment you use won't affect your score.

How are performance tasks graded, and how many people grade the performance tasks?

The scoring results from the Explore and Create performance tasks will be used to calculate a final score using the 1–5 scale. Each assessment will count for a certain percentage of the total AP score. In the 2019-20 exam, the Explore performance task counts for 40% of the total score, and the Create performance task counts for 60% of the total score.

Over 18,000 educators, including high school teachers and college faculty, gather at the AP Reading, an annual event, to score student work from all AP subjects.

How does the rubric on the performance task correspond to the final score on the exam (1–5)?

Please refer to the **2020 AP Computer Science Principles Scoring Guidelines** for information on rubric and to understand how your work is assessed.

Are performance tasks graded on a curve?

No.

Computer Science A

Where can I find more information about AP Computer Science A and how it relates to AP Computer Science Principles? Is one course harder than the other? Will I perform better in one course if I take the other?

The differences and similarities between AP CSA and AP CSP are outlined in the Comparing AP Computer Science Courses section of the **Why Take AP CSP? page**.

You can take either course in any order: You don't have to take AP CSA first to be eligible for AP CSP, and vice versa.

Prior computer science knowledge isn't required to perform well in AP CSP. The only prerequisite for taking the AP CSP course is to complete a high school algebra course like Algebra I with a strong foundation in basic algebraic concepts dealing with function notation and problem-solving strategies. You should be able to use a Cartesian (x, y) coordinate system to represent points on a plane.

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