The AP Computer Science Principles course is designed to be equivalent to a first-semester introductory college computing course. In this course, students will develop computational thinking vital for success across all disciplines, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. The course is unique in its focus on fostering student creativity. Students are encouraged to apply creative processes when developing computational artifacts and to think creatively while using computer software and other technology to explore questions that interest them. They will also develop effective communication and collaboration skills, working individually and collaboratively to solve problems, and discussing and writing about the importance of these problems and the impacts to their community, society, and the world.

**Computational Thinking Practices**

The course also incorporates computational thinking practices that set clear expectations of what students will do in the course:

- **Abstraction:** Abstraction reduces information and detail to facilitate focus on relevant concepts. It is a process, a strategy, and the result of reducing detail to focus on concepts relevant to understanding and solving problems.
- **Data and Information:** Data and information facilitate the creation of knowledge. Computing enables and empowers new methods of information processing, driving monumental change across many disciplines — from art to business to science.
- **Algorithms:** Algorithms are used to develop and express solutions to computational problems. Algorithms realized in software have affected the world in profound and lasting ways.
- **Programming:** Programming enables problem solving, human expression, and creation of knowledge. Programming and the creation of software has changed our lives. Programming results in the creation of software, and it facilitates the creation of computational artifacts, including music, images, and visualizations.
- **The Internet:** The Internet pervades modern computing. The Internet and the systems built on it have had a profound impact on society. Computer networks support communication and collaboration.
- **Global Impact:** Computing has global impact. Our methods for communicating, collaborating, problem solving, and doing business have changed and are changing due to innovations enabled by computing.
Students select and explore an innovation of their choosing. Then, they create a computational artifact about the innovation and describe how it works and how it was used, its purpose, how it consumes and/or produces data, and the harmful and beneficial effects of the innovation on people and society.

**AP Computer Science Principles Exam Structure**

**Assessment Overview**
This assessment comprises two parts: the end-of-course AP Exam and the through-course AP assessment.

The AP Computer Science Principles Exam will be a multiple-choice, paper and pencil exam.

The through-course assessment comprises two AP Computer Science Principles performance tasks, which require students to explore the impacts of computing and create computational artifacts through programming.

**Format of Assessment**

**AP COMPUTER SCIENCE PRINCIPLES EXAM: 2 HOURS**

**End-of-Course Assessment**

- **Assessment Overview**
  - This assessment comprises two parts: the end-of-course AP Exam and the through-course AP assessment.
  - The AP Computer Science Principles Exam will be a multiple-choice, paper and pencil exam.
  - The through-course assessment comprises two AP Computer Science Principles performance tasks, which require students to explore the impacts of computing and create computational artifacts through programming.

**Sample Multiple-Choice Question**

Consider the code segment below.

```
IF onTime
  DISPLAY "Hello."
ELSE
  IF absent
    DISPLAY "Is anyone there?"
  ELSE
    DISPLAY "Better late than never."
```

If the variables `onTime` and `absent` both have the value `false`, what is displayed as a result of running the code segment?

(A) Is anyone there?
(B) Better late than never.
(C) Hello. Is anyone there?
(D) Hello. Better late than never.

Answer: B

**Performance Task: Create – Applications from Ideas**

- This performance task focuses on students developing computer programs and describing significant aspects of the program that allow it to run correctly.
  - Students have the flexibility to write programs that reflect their interests (e.g., their desire to solve a problem; program a game; or produce digital art appealing to a specific audience, etc.) This allows students to engage in the study of computer science from a creative perspective. Students will provide evidence of their knowledge of important programming concepts such as developing algorithms and using abstractions. Students are required to submit an individual program but are able to collaborate on the development of their program.

**Performance Task: Explore – Impacts of Computing Innovations**

- This performance task focuses on students using and applying computational analysis in the exploration of a significant computing innovation to determine and describe the impact of the innovation on people and society.
  - Students select and explore an innovation of their choosing. Then, they create a computational artifact about the innovation and describe how it works and how it was used, its purpose, how it consumes and/or produces data, and the harmful and beneficial effects of the innovation on people and society.