

Mrs. Heather Renfroe - Instructor

# AP Computer Science Principles

"Life is like a trumpet. If you don't put anything into it, you don't get anything out of it."

2021-2022

Gulf Breeze High School

--W.C. Handy

For this class, you will need:

Regular & punctual attendance

Computer with Internet Access at Home

Printer at Home

Pen, Pencil

Folder with brads & pockets

Loose leaf paper

Good Attitude!

## IMPORTANT

### MESSAGE

Take good care of your computer and it will take good care of you. Be sure to follow your network

Acceptable Use Policy (AUP) in all classes at all times.

## About this Course

AP Computer Science Principles introduces students to:

- the central ideas of computer science
- inviting students to develop the computational thinking vital for success across multiple disciplines
- focuses on fostering students to be creative and
- encourages students to apply creative processes when developing computational artifacts

Students design and implement innovative solutions using an iterative process similar to what artists, writers, computer scientists, and engineers use to bring ideas to life.

In partnership with the National Science Foundation, the AP Program collaborated with secondary and postsecondary educators and members of computer science educational professional organizations to develop the AP Computer Science Principles curriculum framework.

## Course Overview

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 skills vital for success across all disciplines
- Use computational tools to analyze and study data and work with large data sets to analyze, visualize, and draw conclusions from trends
- Apply creative processes when developing computational artifacts and to think creatively while using computer software and other technology to explore question that interest them
- Develop effective communication and collaboration skills, working individually and collaboratively to solve problems

Please be familiar with Teams, my website [heatherrenfroe.com](http://heatherrenfroe.com) and where to locate information for your class as well as the weekly lesson plans.

Contact Mrs. Renfroe for more information:

[renfroh@santarosa.k12.fl.us](mailto:renfroh@santarosa.k12.fl.us)

## Prerequisites

Students in APCSP should **have successfully completed Algebra I & Geometry** with a strong foundation in basic algebraic concepts dealing with function notation, such as  $f(x) = x + 2$ , and problem-solving strategies that require multiple approaches and collaborative efforts.

## Course Requirements

Student agrees to complete the **Summer Reading**, the course, including the AP CSP College Board Exam.

Sign up or complete the following prior to July 1:

- **Remind** – free downloadable app; code is @f6aaeh
- Install **Office 365** at home
- Download & read the free book "**Blown to Bits**" (300+ pages)
- Create an account at **Code.org** – Be familiar with this site.

## Goals

Unit 1: **Digital Information** – Explore how computer store complex information like numbers, text, images & sound. Debate the impacts of digitizing information.

Unit 2: **The Internet** – Learn about how the Internet works & discuss its impacts on politics, culture & the economy.

Unit 3: **Intro to App Design** – Design your first app while learning both fundamental programming concepts & collaborative software development processes.

Unit 4: **Variables, Conditionals & Functions** – Expand the types of apps you can create by adding the ability to store information, make decisions, & better organize code.

Unit 5: **Lists, Loops & Traversals** – Build apps that use large amounts of information and pull in data from the web.

Unit 6: **Algorithms** – Design & analyze algorithms to understand how they work and why some are considered better than others.

Unit 7: **Parameters, Return & Libraries** – Learn how to design clean and reusable code that you can share with a single classmate or the entire world.

Unit 8: **Create PT Prep** – (Submitted to AP College Board)

Unit 9: **Data** – Explore & visualize datasets

Unit 10: **Cybersecurity & Global Impacts** – Research & debate current events at the intersection of data, public policy, law, ethics, and societal impact.



## AP Computer Science Principles Summer Assignments 2021-22

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**CREATIVITY – ABSTRACTION – DATA & INFORMATION – ALGORITHMS – PROGRAMMING – INTERNET –  
GLOBAL IMPACT – MOBILE APPS**

Connecting Computing | Creating Computational Artifacts | Abstracting | Analyzing Problems & Artifacts | Communicating | Collaborating

### **To: Future AP Computer Science Principles Students**

Welcome to AP CSP! As we eagerly anticipate a great year of Computer Science Principles, there are several required items you need to do to be prepared for the course. Enrolling in this class indicated that you agree to complete this course and the culminating AP CSP College Board tasks, assignments, and exam.

#### **Course Requirements:**

- Student agrees to complete the Summer Reading, the course, and take the AP CSP College Board Exam.
- Student must have access to a computer, the Internet, and a printer at home, or access to the local public library.

#### **Student must complete the following requirements before July 1:**

- Download the Remind App** and join the class code @f6aaeh (send a text to 81010 with the code in the message)
- Install Office 365** on your computer at home by using the "Office FREE for HOME" app in ClassLink.
- Visit <http://www.heatherrenfroe.com/>** for occasional additional information & become familiar with the site (Click the tab "AP Computer Science Principles" at the top.
- Microsoft Teams:** Make sure you are familiar with how Teams functions. All assignments are posted there the week prior
- Create an account at Code.org** – Our curriculum for the entire year is based inside the Code.Org platform
- Download the REQUIRED READING -- "Blown to Bits" Your Life, Liberty, and Happiness After the Digital Explosion** by Hal Abelson, Ken Ledeen & Harry Lewis (384 pages) available free online, [here](#) or on the AP Computer Science Principles page on my school website at this URL (<http://www.heatherrenfroe.com> )

#### **Required Summer Reading:**

##### **Blown to Bits**

Take notes in a composition notebook while reading the book. You do NOT need to annotate, complete an outline or report. Simply, take good notes so when we have class discussions on the chapters, you will be able to review your notes and contribute to the discussion.

See you in the fall!

Mrs. Renfroe

[renfroh@santarosa.k12.fl.us](mailto:renfroh@santarosa.k12.fl.us)

\*During the summer, email will only be checked once a week. Responses will be sent within 7 days of receipt of your email. Please do NOT spam my inbox. Also, during the time of July 10-25 email will NOT be checked as my location during that time period generally does not have any Internet connectivity.